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Public Involvement Activities Guide

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This Handbook was prepared for use in a training program to acquaint citizen leaders with the important decisions that are made in planning for the management of municipal wastewater. The training program was designed to:

- identify the key decisions throughout the planning process that are critical to the outcome of that process and to the community's future;
- identify and analyze the environmental, economic, and social considerations that affect these important decisions;
- facilitate citizen input to those decisions by stripping the process of technical jargon, and helping the reader understand the community judgments that must be made; and,
- help citizens understand the legal tools and participatory techniques that will facilitate their involvement in the planning process.

This publication may be used in conjunction with "Citizen's Guide to Facility Planning".

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MUNICIPAL WASTEWATER MANAGEMENT:

Public Involvement Activities Guide

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January 1979

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FOREWORD

This handbook was prepared by The Conservation Foundation for use in a training program to acquaint citizen leaders with the important decisions that are made in planning for the management of municipal wastewater. The training program was designed to:

- identify the key decisions throughout the planning process that are critical to the outcome of that process and to the future of the community;
- identify and analyze the environmental, economic, and social considerations that affect these important decisions;
- facilitate citizen input to those decisions by stripping the process of technical jargon, and helping the reader understand the community judgments that must be made; and
- help citizens understand the legal tools and participatory techniques that will facilitate their involvement in the planning process.

The Environmental Protection Agency and The Conservation Foundation initiated this training program in the belief that the impacts of constructing a community sewage treatment facility may have profound long-term environmental, economic, and social consequences. We felt that community involvement in planning for sewage treatment facilities would result in cleaner water at lower ultimate cost. Only careful public scrutiny can ensure:

- that sewage treatment planning meets the present and future needs of the community;
- that all the relevant environmental, economic, and political data necessary to ensure effective implementation emerge;
- that appropriate measures are taken to mitigate negative impacts; and
- that a community develops a commitment to continued oversight of the operation and maintenance of the facility.

The book that follows is divided into two parts. The first part--the Facilities Planning Process--is essentially a summary of a larger and more detailed handbook entitled Municipal Wastewater Management: Citizens Guide to Facilities Planning. The summary of the handbook has been included in the Public Involvement Activities Guide as a "short-course" to the facilities planning process. As you get more deeply involved in planning for a municipal wastewater treatment facility, you may wish to obtain a copy of the more detailed handbook. You may order a copy from:

General Services Administration
Centralized Mailing Lists Services
Building 41, Denver Federal Center
Denver, Colorado 80225

The second part of this book is designed to provide guidance to the public involvement opportunities of the facilities planning process. In addition to describing the regulatory and legal framework for public participation, the second part of the book describes some of the basic tools of public participation.

The two parts of this book--taken together--are designed to assist your involvement in the facilities planning process by highlighting key decision points appropriate for citizen focus as well as appropriate techniques for affecting those decisions. We hope that local governments and citizen leaders in communities beginning the process of municipal sewage treatment planning will be able to use this book to assist them in designing an approrpiate public participation program for their community.

Clem L. Rastatter
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January 1979

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PART I

FACILITIES PLANNING

I. THE FEDERAL WATER QUALITY PROGRAMS: AN OVERVIEW

Controlling water pollution in this country's 78,267 square miles of lakes, rivers and streams is an enormous undertaking; meeting community wastewater treatment needs is a major part of that job. There are now 12,800 treatment plants operating in the United States, and another 6,200 under construction or planned. Over half of them fail to meet water quality standards. Solving this problem involves an immense planning job, huge outlays of money, coordination between federal, state and local governments and the active participation of concerned citizens.

For individual communities, planning for proper municipal waste treatment means making decisions that will affect the face and shape of the area for years to come. Public participation is therefore essential to preserve a community's values and goals. Yet the decisions made in planning are complex, complicated by technical jargon, and often difficult for concerned citizens to understand. This manual provides a citizen's guide to the process of planning for municipal wastewater management.

Federal Goals and Strategies

The current federal effort to clean up the nation's waters began in 1972 when Congress, by passing the Federal Water Pollution Control Act Amendments, took the unprecedented step of deciding that the nation's water could no longer be an integral part of waste treatment. The Senate noted: "Pollution continues because of technological limits, not because of any inherent right to use the nation's waterways for the purpose of disposing of waste."

Five years later, after sometimes controversial experience, the law was modified by the 1977 Clean Water Act. The two laws are collectively known as the Clean Water Act; the Act's ultimate goal is to eliminate the discharge of pollutants into any surface waters by 1985. More immediately, by July, 1983, it seeks to achieve where possible "fishable and swimmable waters," ". . . an interim goal of water quality which provides for the protection and propagation of fish, wildlife and shellfish and provides for recreation in and on the water."

The Congress also recognized the enormous expense of cleaning up the nation's waters. The Act attempts to balance water quality goals against the cost of achieving them.

Along with these new water quality goals came fundamental changes in strategies for controlling or eliminating pollution. The 1972 Act set as its primary goal the protection of aquatic

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ecosystems. As a central strategy, it established a new set of standards (called effluent limitations) to control pollution at its source--either point sources (direct discharges from pipes) or nonpoint sources (the more diffuse discharges such as runoff from agriculture or construction). This source control strategy is designed not only to be enforceable but also to impose more equitable and uniform requirements on similar polluters located in different places. A paper mill on a comparatively clean river must control its pollution to the same degree as a mill on a dirty river, for example. Thus, the clean river will be preserved and the dirty one cleaned up. This strategy also eliminates the incentive for polluters to locate their plants in areas with weak regulations.

Each state's particular standards play a significant, though secondary, role. Standards based on use (swimming, drinking, industrial use) have been established for all surface water; when the uniform national source controls fail to meet these standards, more stringent controls based on water quality standards are to be imposed on a case-by-case basis.

The 1972 legislation also brought about a major institutional change--a significant boost in federal authority, exercised by the U. S. Environmental Protection Agency (EPA). In general:

- state water quality agencies establish all surface water quality standards, subject to EPA approval;
- EPA establishes uniform national source controls for both industrial and municipal dischargers; and
- EPA regulations interpret the federal law and the federal/state relationship in implementing the law.

The 1977 Clean Water Act builds on the basic strategy of source control, but gives a new priority to state water quality standards. It also grants a number of variances from previously specified tight deadlines.

The Act sets effluent limitation requirements--and deadlines for reaching them--for industrial and municipal point source discharges. Communities with publicly-owned sewage treatment works (POTW) were directed to achieve a level of wastewater treatment equivalent to secondary treatment (see Glossary) by July 1, 1977 (unless they were subject to certain delays beyond their control, such as lack of availability of federal funds). They must achieve a level of treatment called Best Practicable Waste Treatment Technology (BPWTT) by July 1, 1983. (EPA defines BPWTT as the equivalent of secondary treatment or whatever more stringent treatment level might be necessary to meet water quality standards.)

Enforcement

The Clean Water Act requirements are backed up by significant financial and legal penalties, and are enforced on industrial and municipal dischargers through permits issued under the National Pollutant Discharge Elimination System (NPDES). The NPDES permits set the effluent limit for point source discharge by individual dischargers. These permits are issued and enforced by either an EPA Regional Office or by a state water quality agency (if EPA delegates authority to that state).

Federal Assistance to Communities

When it imposed these requirements and potential penalties, the Congress recognized the financial problems that municipal dischargers would have in meeting them. To provide incentives, therefore, the Clean Water Act offers federal money to cover 75 percent of the cost of constructing publicly-owned sewage treatment works.

(In fact, Congress clearly tied the regulatory requirements to the availability of these funds. Communities that have not met the 1977 deadline for secondary treatment of municipal discharges may receive a variance--until 1983--if one reason for noncompliance is a lack of federal money.)

Taken together, the two major sections of the current water quality laws that concern municipal wastewater are frequently called the municipal facilities program. The first of these is the NPDES permit system; the second is the federal Construction Grants Program for treatment works. This program awards federal grants in three steps:

Step 1 - the facilities planning phase, when most major decisions leading toward construction of publicly-owned treatment works are made;

Step 2 - the design and specifications for the facility; and

Step 3 - actual construction.

Plans completed under a Step 1 grant are also called Facilities Plans or 201 Plans (taking their name from the section of the Clean Water Act that establishes the conditions for planning municipal waste treatment facilities).

EPA recognizes that because of the huge federal outlays involved, the municipal facilities program runs inherent public policy risks similar to those encountered in the construction of highways:

- that large amounts of available federal money would reduce incentives for cost-effectiveness;

- that the presence of federal money would discourage local initiative and local spending;

- that inflated cost figures and fraud would siphon off significant parts of the available funds; and

- that environmental impacts brought about by this public works project--especially those relating to the location of the facility--would in many cases create worse problems than those the project was designed to solve.

EPA therefore imposes strict conditions on grant awards, ranging from requirements for cost-effectiveness and community financing to requirements that alternative waste treatment methods be fully evaluated and that environmental impacts receive substantial public scrutiny.

Public Participation

Planning requirements for the Construction Grants Program include broad-based procedures for public participation. These are described in Section 101(e) of the 1972 Federal Water Pollution Control Act Amendments:

> Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the EPA Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.

Community planners should be particularly aware that planning decisions made in the course of constructing a waste treatment system can have long-lasting social, economic and political repercussions on each community. Public participation is crucial.

Goals of the Municipal Facilities Program

The goals of the municipal facilities program are found in Section 201 of Title II of the Clean Water Act. To meet the conditions for federal funding, waste treatment must:

1. provide for evaluation of alternatives in order to apply the "best practicable waste treatment technology" (BPWTT) before any discharge into receiving waters, including the options of reclaiming and recycling of water, confining disposal of pollutants so they will not migrate to cause water or other environmental pollution, and considering advanced waste treatment techniques.

2. be pursued on an areawide basis as far as possible, and must provide for the control of all point and nonpoint sources of pollution;

3. encourage revenue-producing facilities that rely on recycling wastewater, confinement and containment of pollutants not recycled, and disposal of sludge in an environmentally acceptable way;

4. encourage the combination of open space and recreational uses with waste treatment goals;

5. encourage techniques to reduce energy requirements;

6. After September 1978, planners for all projects are required to evaluate "innovative and alternative" waste treatment management techniques; and to analyze potential recreation and open space opportunities.

Other Planning Programs of the Clean Water Act

Ideally, the planning requirements of the Clean Water Act should provide a framework for decision making under the entire Act. These requirements, spelled out in Sections 106, 201, 208 and 303 of the Act, are intended to bring the following results:

1. achieving the 1983 water quality goal of fishable and swimmable waters;

2. determining the information from which NPDES permits can be issued to impose discharge standards stricter than the uniform national effluent standards where necessary to meet a state's water quality standards;

3. a management plan to control pollution from all point and nonpoint sources; and

4. a process to ensure that federal construction grants are spent to build the most cost-effective treatment works.

Planning under Section 208 is conducted on an area-wide basis within states in regions designated by the governor, or, in nondesignated areas, on a statewide bases. These plans must address all point and nonpoint sources of pollution within the areas in order to achieve fishable and swimmable water by 1983. Planners are empowered to control pollution by limits on discharge, by regulating the location of potential pollution-causing activities, or by a combination of both methods.

One unusual aspect of 208 planning is that it must identify the measures needed to carry out the final plan and must recommend appropriate state, regional or local agencies to carry them out. This implementation strategy is a crucial element; many past efforts have failed for lack of one. The 208 plan also is designed to be at least partially self-implementing: no permits or construction grants are to be issued unless they are consistent with it.

303(e) planning, conducted solely by the state (unless subcontracted to a local agency), concentrates on the water quality of entire river basins. It determines what discharges will be allowed along particular rivers, streams and lakes. Bodies of water classified either as effluent-limited (where uniform national discharge limits are enough to meet state water quality standards) or water-quality limited (where stricter limits are needed to meet state standards). The resulting discharge limits are written into the NPDES permits for dischargers along river basins and must be incorporated in local planning. These river basin plans must also decide how to prevent water of high quality from being degraded, how water quality standards can be revised and which stream segments should receive priority attention.

The planning required under Sections 208 and 303(e) are intended to work together to bring about a water quality management plan in each state. These plans should then form the framework for the individual Facilities Plans.

Strategies for Better Implementation

Unfortunately, these various planning requirements have been controversial, generating conflict between Congress and EPA and causing confusion and lack of coordination in state water quality agencies. Proposed new water quality management regulations published in the Federal Register on September 12, 1978, attack this problem and herald a new era in water quality management planning.

Under these regulations, a formal State/EPA Agreement designed to integrate the various planning elements of EPA's environmental laws would become the central management tool of a newly unified Water Quality Management Program. The water quality management portion of the State/EPA Agreement would cover many programs for which EPA provides state water quality agencies with financial assistance--including areawide and basin planning programs, permit programs and Construction Grant Management Programs.

The proposed regulations renew emphasis on yearly program targets and on implementation of Water Quality Management Plans. Proposed sanctions for lack of implementation include withdrawal and possible recovery of federal grants.

Details about facilities planning decisions made during water quality management planning are discussed in other sections of this handbook. These decisions are:

- priority funding;

- effluent limitations;
- boundaries of facilities planning areas; and
- population projections.

Generally, no grants for treatment plants are to be given unless the plans are consistent with an approved Water Quality Management Plan.

Other Federal Laws and Regulations

Executive Orders and federal laws other than the Clean Water Act also play an important role in facility location and design decisions. These include:

- the Wetland Executive Order
- the Floodplain Executive Order
- the Archeological and Historic Preservation Statutes
- the Endangered Species Act
- the Wild and Scenic Rivers Act
- the Coastal Zone Management Act
- the Safe Drinking Water Act
- the Resource Conservation and Recovery Act
- the Rivers and Harbors Act (dredge and fill)

In most but not all cases, the requirements of these acts and orders must be met during the facility planning process or the process is vulnerable to legal challenge in the courts. The Environmental Impact Statement process is the general vehicle for communicating findings or conclusions about these provisions; in some cases, there are supplementary procedures that involve other agencies and may provide additional opportunities for public participation.

II. SEWAGE TREATMENT IN A COMMUNITY CONTEXT

Most existing wastewater treatment facilities or disposal processes in U. S. communities have failed to meet the standards of the 1972 Federal Water Pollution Control Act Amendments. The states or EPA have instructed many public authorities to improve the quality of their existing treatment process or to build new plants.

The key issues to consider as a community plans for new or replacement wastewater facilities are:

- Disposal of solid waste (sludge) generated by improved secondary and advanced treatment;
- Appropriateness of facilities to rapidly changing short and long-term needs in a community;
- The long-term reliability factor--especially the operation and maintenance needs and costs that the community must support.
- Location, cost and quantity of new housing available in a community;
- Conservation of prime agricultural land;
- Minimizing flood hazard risks and protecting wetlands and other environmentally sensitive lands;
- Protection of community water supplies, particularly from toxic chemicals and heavy metal contamination; and
- Control and planning of future industrial and commercial growth for best use of land and to avoid damaging existing resources.

How a community resolves these issues will depend on the choices it makes about such questions as facility location, type of treatment process, plant capacity, service area and water reuse. These choices depend heavily both on topographic features (slopes, watershed boundaries and soils) and on political decisions that control future patterns of community growth, often referred to as land-use parameters. The following brief example illustrates the most basic issues.

A Sample Planning Case

Two riverside towns (X and Y) each have existing developed areas serviced by separate sewage treatment plants. (See illustration.) Located about 15 miles apart, each town is in a separate watershed. Local streams are valued for their high water quality. But Town X, which is upriver from Town Y, has discovered that the quality of the water in its smaller stream is declining because of subdivisions in the hills of its watershed. Unfortunately, these subdivisions are actually within the political jurisdiction of Town Y, which has roughly the same population as X but is much larger in area.

The state orders construction of a new sewage treatment facility for these subdivisions, both to serve existing housing and to permit new housing construciton to proceed. Towns X and Y must also improve the secondary treatment capacity of their existing plants to obtain state discharge permits. EPA threatens enforcement action.

These two communities face a number of choices:

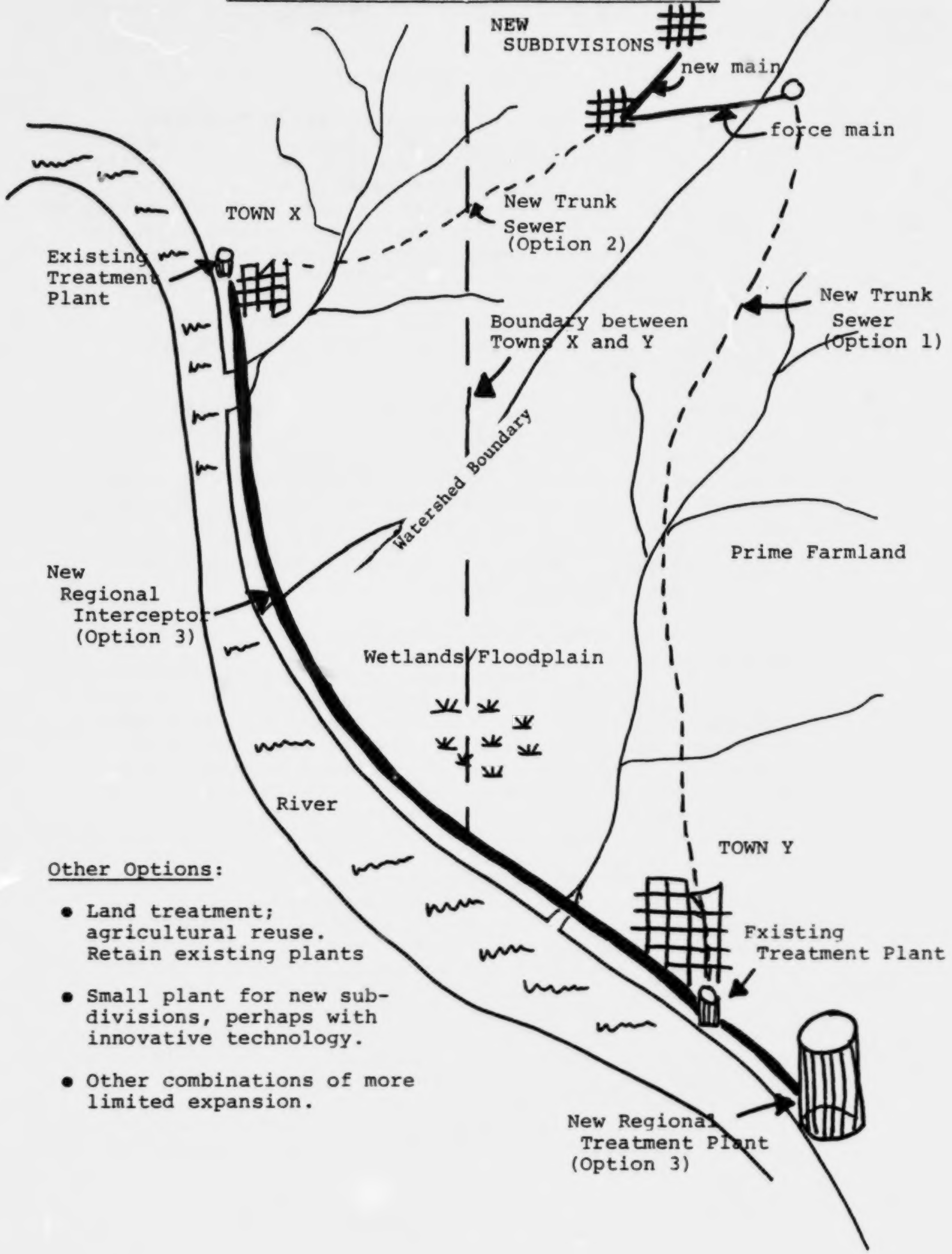
Option 1) Town Y can build additions to its sewage treatment facility to serve the new subdivisions. (They have to improve the plant to achieve current secondary treatment standards anyway.) This will require a force main (pressurized sewer) to move the sewage from one watershed to another. It will also require a long and expensive interceptor (trunk) sewer to run to the remote subdivisions, which are actually bedroom suburbs of Town X. The interceptor will cross farms and environmentally sensitive lands served by good roads, and demands for subsequent subdivision and development of these areas are likely if the sewer line is put in.

Option 2) Town X can provide service to the new subdivisions. Because the service will remain within a watershed, gravity mains could provide more inexpensive service, and the shorter distance would also reduce the capital costs for providing the new service. The open land between Town Y and its remote subdivisions would not be serviced with sewers, making new development there unlikely. Political agreement between Town X and Y would be required.

Option 3) The two communities together could build a new regional sewage plant that would be served by a gravity interceptor running along the river. Each of the smaller watersheds could be served by gravity trunk sewers. If the open land between Towns X and Y were needed for development at some time in the future, another trunk could be added to serve this area. Substantial economies of scale might be realized. However, construction of the regional plant might generate subtle pressure for the development of the open agricultural and environmentally sensitive lands between towns as the two communities sought formulas to recoup the large initial capital costs. (One technique communities often use to recover treatment plant costs that EPA does not reimburse is to service large areas for new construction and to shift costs to the incoming residents as rapidly as possible.)

Option 4) Town Y could recommend that a small new on-site system be built just to serve the subdivisions. This solution, plus modification of the two existing treatment facilities to meet secondary treatment standards and to provide for some new growth in the already built up areas in Towns X and Y, may in fact solve the immediate pollution problem at the

SEWAGE TREATMENT OPTIONS: TOWNS X AND Y


NEW SUBDIVISIONS
new main
force main
TOWN X
New Trunk Sewer (Option 2)
Existing Treatment Plant
New Trunk Sewer (Option 1)
Boundary between Towns X and Y
Watershed Boundary
Prime Farmland
New Regional Interceptor (Option 3)
Wetlands/Floodplain
River
TOWN Y
Existing Treatment Plant
New Regional Treatment Plant (Option 3)

Other Options:

- Land treatment; agricultural reuse. Retain existing plants
- Small plant for new subdivisions, perhaps with innovative technology.
- Other combinations of more limited expansion.

least cost. Two problems emerge with this strategy, however. Unless the communities adopt more stringent land-use policies in the future than they have in the past, orderly growth near existing communities may not be possible. New subdivisions creating new pollution problems may continue to be built at some distance from the towns as a consequence. If the communities were to decide in the future that they wanted to expand, they might have to assume the construction costs for the large sewage treatment plant necessary to accommodate greater new growth than planned for, since there is no assurance that federal funds will be available for such purposes in the future.

Direct and Secondary Impacts

These kinds of decisions facing communities and the conflicts that lie behind them are generally evaluated in terms of the direct (or primary) and secondary impacts associated with various alternatives. Many direct impacts of facility location and construction are straightforward and short-term--traffic disruption, temporary erosion and construction noise, for example--and can be minimized if the contractor follows accepted methods (for example, by staggering hours of operation).

Direct impacts may also include:

- Land Use

  Wildlife relocation; habitat destruction
  Loss of environmentally sensitive areas (wetlands, floodplains, endangered species habitat, etc.)
  Conflicts with adjacent uses
  Erosion
  Loss of agricultural land
  Archeological losses
  Growth in population

- Aesthetic

  Visual, noise, dust, odor, loss of open land

- Mechanical

  Traffic
  Disruption of commercial/residential activity
  Energy consumption
  Employee commuting, housing

- Risks

  Adjacent property value changes
  Floods
  Seismic activity
  Safety hazards associated with construction; water pollution

Secondary impacts can be more subtle and long-lasting--impacts arising from changes in community land use and population growth due to facility construction and new sewer service. Facility construction may be the most important or simply one of many causes. They may include environmental disruption and increased costs of housing and services.

Some secondary impacts are addressed by specific provisions in state and federal laws.

Long-Term Responsibilities

When the facility construction is completed, the community must make sure that its facility is operated and maintained well enough to meet design standards and the effluent limitations of its NPDES permit. Enforcement actions for violations of permit conditions may bring substantial civil fines and/or criminal penalties.

Many past systems built primarily with federal funds have not operated to design capacity. Complex, high technology systems sometimes were designed for communities with neither the money nor the know-how to operate them.

The Clean Water Act deals with this problem in two ways. First, it requires communities to develop a detailed operation and maintenance plan before construction is complete. Second, communities must design a system of user charges to pay long-term operation and maintenance costs.

The community is also responsible for any future expansion. The completed treatment facility should have a reserve capacity to handle 20 years of anticipated future expansion. If the population projections are accurate, the community will want to start actively planning expansion after 10 of these 20 years have elapsed. Federal funds may not be available for any future expansions.

III. INSTITUTIONAL ISSUES OF SEWAGE TREATMENT MANAGEMENT

What are the federal responsibilities in the Construction Grants Program? Who are the federal actors?

The U.S. Environmental Protection Agency, which administers the Clean Water Act, plays the preeminent role in the Construction Grants Program: it writes regulations and guidelines that interpret the law and awards the grants. EPA headquarters in Washington, D.C. takes primary responsibility for interpreting the law, while EPA's 10 Regional Offices throughout the country have primary authority to award Step 1, 2 or 3 grants.

EPA publishes three major kinds of documents that direct and guide EPA personnel, state agencies and local applicants in implementation of the Construction Grants Program.

1) Regulations having the force of law are proposed for public comment and then issue in final form (generally after a 60-day comment period) in the Federal Register, which is published daily by the Superintendent of Documents, Government Printing Office, Washington, D.C. ($50 for annual subscription). EPA regulations also appear under Title 40 of the Code of Federal Regulations (CFR), an annual compilation of all federal regulations in final form.

2) Program Requirements Memoranda (PRM's) interpret significant issues raised by regulations. They do not have the force of law, but are generally considered to be more specifically instructive than are guidelines.

3) Guidelines, giving advice on the general procedures, methods, and material to implement regulations. They do not have the force of law.

What are the state responsibilities in the Construction Grants Program? Who are the state actors?

The state water pollution control agency has a powerful role in the sewage treatment program. The state agency develops a Priority List each year that determines which community receives how much federal money to solve its waste treatment needs. The state also determines the facilities planning boundaries and establishes the water quality standards applicable to specific waters. Each state must approve applications for facilities planning grants before they can be submitted to EPA, and also reviews and approves the completed Facilities Plan prior to EPA's review. In addition, the state will have an increasing role in developing population projections for individual facilities planning areas.

The Clean Water Act Amendments of 1977 call for a further increase in state involvement in the Construction Grants Program through the provision of Construction Management Assistance Grants (CMAG). These grants, which come out of the construction grants funds allotted to each state, allow the state to assume responsibility for certification that all federal requirements are met prior to the actual grant award.

Most states currently have some sort of delegation agreement with EPA that allows them to certify that ongoing construction is proceeding properly and that the Operations and Maintenance Manual prepared for each facility has been properly done. Many states are anxious to assume responsibility for the entire program.

Some functions remain with EPA and cannot be delegated to the states: determination of the necessity for and preparation of an Environmental Impact Statement and the actual award of funds for any Step 1, 2, or 3 grant.

Once the delegation agreement is completed, the Construction Management Assistance Grant (CMAG) may be awarded. Both the completed agreement and the CMAG may be amended and extended at any time.

Public Involvement

Newly issued EPA regulations require public involvement during the negotiation of delegation agreements and any substantial amendments to them. Actual copies of draft delegation agreements (and substantial amendments) and fact sheets are to be distributed 45 days before approval, and if there is significant public controversy a hearing must be held. The public is specifically asked to consider whether the state program is adequate to handle the proposed delegations.

Members of the public should be particularly alert to the provisions made in any delegation agreement for assuring compliance with the public participation requirements of the Clean Water Act. Once a delegation has been made, it will be politically difficult for EPA to retract it.

What is the local role in the facility planning process? Who are the local actors?

The local recipient of a Step 1 grant is responsible for preparing the Facilities Plan and for making the important decisions concerning the community's future required by the Act.

The official grant applicant may be the town officials (selectman, mayor, town council) or the trustees or commissioners of a special sewer or sanitary district established for this program. Because local officials tend to be inexperienced in sewage treatment questions, they usually hire an engineering consultant for actual preparation of the Facilities Plan. In many instances, important political decisions are delegated to the engineer. Although often buried in technical jargon, the issues raised by the facilities planning process affect the future and shape of communities. Unraveling the value-laden political judgments from the mass of technical materials is an important role for citizen participants in the facilities planning process.

Concerned members of the public should become involved as early as possible in facilities planning. In the past, public participation often has come late in the process, in response to a controversial plan recommendation. Massive controversies then ensue, often requiring years of negotiation, new plans and wasted expenditures of public funds. Development of a public participation program as part of the grant application for the planning funds may save a good deal of time and, ultimately, money.

How does Section 208 planning relate to the on-going facility planning process?

Congress intended Section 208 to be the keystone of clean water planning. It was to bring about integrated areawide and statewide management plans that would provide the framework for the more local decisions of the Facilities Plan. Yet historically the reverse has been the case: the Step 1 facilities planning effort funded under Section 201 has provided much of the framework for the broader water quality management planning of Section 208. Factors associated with 201 planning--local constituencies more powerful than regional ones, more detailed federal requirements, more emphasis and funding for Step 1 planning--have combined to move facilities planning ahead of 208 planning in most localities and to set many planning decisions in concrete before other options can be thoroughly evaluated. Serious 208 planning, however, is now underway in most states; a major problem lies ahead in trying to coordinate the 201 and 208 planning efforts.

You should be aware of the status of 208 planning in your area especially if you live in a region that is under the jurisdiction of an areawide agency. If final 208 decisions have been made and final approval given, your facilities planning may be constrained in important areas by the approved 208 plan. Such critical issues as population projections, service areas and recommended waste treatment alternatives and locations may have been already decided. If so, you should examine how these decisions were reached. If you are unhappy about them, you will have to seek an amendment to the 208 plan, in addition to working through the facilities planning process.

How is the sewage treatment program meeting congressional goals and objectives for it?

The Construction Grants Program is the largest public works program since the federal aid-to-highways program. Over $19 billion has been obligated by the federal government for the planning and construction of treatment works since the passage of the Clean Water Act in 1972. More than 100 grants are awarded every month; more than 6,000 Step 1 grants have been awarded so far, totalling over $500 million; and more than 670 Step 3 projects have been completed. Most of the grant money has been awarded to communities with populations over 10,000; over one-third of it to cities with a population greater than 500,000. *

However, two-thirds of the 12,800 treatment plans currently in operation nationwide do not meet the secondary treatment requirements of the Act. More than half of these facilities require treatment stricter than secondary to meet their state water quality standards.

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* These figures are derived from a FACTSHEET issued by the EPA Construction Grants Program in August 1978.

Basic Political Conflicts

Two continuing and related tensions accompany implementation of the Construction Grants Program at all levels of government. The first is the continuing tension between facilities planning--intended to find ecological solutions to environmental problems--and the construction grants that are the basis of a huge public works program.

Recognizing possible employment opportunities, and faced with meeting strict regulatory deadlines, the major institutional actors--Congress, the states, the sewage treatment industry and EPA--have put great priority on speeding up the rate of obligations to the Contruction Grants Program. Observers of the program have noted that the political necessity of moving money quickly has higher priority than ensuring the value of the planning. Attempts to upgrade quality, if they could cause delays in the rate of obligations, are discouraged.

The second major tension of the program has involved its management at the local level.

Since 75 percent of the planning and construction funds come from the federal government (and perhaps an additional 5-15 percent from state government) local communities have little incentive to worry much about facilities planning. The community's future cost of maintaining and operating the system may at first seem obscure and remote.

Furthermore, since the recipient of the construction grant is frequently a group of lay people--county councilmen, town selectmen--who have no experience with wastewater management, the job is typically turned over completely to a consulting engineering firm.

The vast majority of consulting engineers who design publicly-owned waste treatment works are people of competence and integrity; however, they are only human. Like everyone else their competence for a particular project may be affected by their training, their past experiences and their future interests. Relevant facilities planning requires the involvement of informed layment from within the community (both inside and outside of government) who are sensitive to the present and future needs of their community.

IV. BACKGROUND TO FACILITIES PLANNING

The basic purpose of the three-step construction grants process is to assure that facilities built with federal funds are both environmentally sound and cost-effective. The Step 1 plan provides opportunity for local, state, and federal review of the planning process at a key point along the road to final construction. It also allows mid-course correction, and offers assurance to both the affected community and the federal officials responsible for grant disbursement that the facility being planned will be a sound one.

What federal policies implement the Construction Grants Program?*

Special Environmental Considerations

As noted earlier, wastewater treatment facilities are subject to all federal laws relating to protection of the environment, governing disposal of solid wastes, and promoting wise land and resources use (the Clean Air Act, National Environmental Policy Act, etc.).

Floodplains Management and Wetlands Protection

To implement the requirements of a recent Executive Order on floodplains and wetlands (11988 May 24, 1977), EPA has established its policy and guidance for protection of floodplains or wetlands.

If there is no practicable alternative to locating in or affecting the floodplains or wetlands, EPA must consider opportunities to minimize adverse impacts on them and to restore and preserve their natural and beneficial values. Once the agency has made a decision on the most desirable alternative, it must notify the public and also produce a statement of finding that explains its decision.

Significant Agricultural Lands

EPA policy concerning protection of significant agricultural lands requires, among other things, that specific project decisions involved in the planning, design, and construction of sewer interceptors and treatment facilities must consider farmland protection. If it is necessary to construct sewers on prime agricultural land, appropriate measures to protect that land for agricultural purposes are to be taken.

Small-Scale, Innovative and Alternative Systems

Concern over the large number of expensive conventional, centralized secondary treatment and discharge facilities in the U.S. led Congress to put new emphasis on nonconventional systems in the 1977 Clean Water Act. Several provisions of the Act can be expected to have a significant impact on the type of treatment systems that are funded.

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* This discussion is limited to the most important policies. Other policies (and more detail) are discussed in the companion volume to this book entitled: Municipal Wastewater Management: Citizens Guide to Facility Planning.

First, after September 30, 1978, no construction grants may be awarded unless "innovative and alternative" systems that provide for the "reclaiming and reuse of water, otherwise eliminate the discharge of pollutants and utilize recycling techniques, land treatment, new or improved methods of waste treatment management for municipal and industrial waste . . . and the confined disposal of pullutants. . ." have been studied. (See definition below.)

Second, a special reserve fund is to be set aside for bonus grants to be allotted for construction of innovative and alternative treatment systems. This bonus raises the federal share of the approved treatment works from 75 to 85 percent.

Another special provision allows that, when comparing the life-cycle costs of different treatment systems, a so-called innovative and alternative system may exceed the costs of a conventional system by as much as 15 percent and still be eligible for federal funding.

As additional incentives for innovative and alternative technologies, states may include them as a criterion for priority funding. Communities that invest in approved innovative systems that fail may find that 100 percent of their investment is protected by federal guarantees if the failure occurs during the first two years of operation.

EPA guidelines published on September 27, 1978, attempt to define innovative and alternative technology. Essentially, alternative technology is a treatment method other than a centralized conventional treatment and discharge system using biological and physical/chemical unit processes. Innovative systems are systems that have not "been fully proven under the circumstances of their contemplated use and represent a significant advancement over the state of the art in terms of meeting the national goals. . ." Criteria that the regional administrator must use in reaching a determination of innovation include:

- cost of 15 percent less than the most cost-effective other alternatives;
- reduction by 20 percent of net energy requirements for alternatives;
- improvements in operational reliability;
- better toxic materials management;
- increased environmental benefits; and
- improved joint municipal industrial management and treatment.

The guidelines for the funding of innovative and alternative systems are flexible. The decision concerning whether a system is innovative or alternative must be made by the EPA regional office (or by the state in the case of a delegated program) on a case-by-case basis.

Special Attention to the Concerns of Small Communities

During the 1977 debates over the Clean Water Act, Congress paid particular attention to the problems of small communities in meeting goals for municipal facilities. Communities with populations under 25,000 and a planned facility costing less than $2 million ($3 million in states with unusually high construction costs) may submit a combined application for Step 2 and 3 in order to speed up construction, cut administrative costs and reduce the inflation of construction costs caused by delays. In addition, EPA is authorized to provide direct technical assistance to small communities with qualified innovative and alternative systems.

Individual Systems

For the first time, individual systems such as septic fields are eligible for federal grants under certain conditions.

These small systems are considered alternative to conventional treatment under the definition of "innovative and alternative." EPA has ruled that these individual systems are eligible for a bonus grant from the innovative and alternative "set-aside" as well as for the 75 percent federal funding available through a special reserve set aside for alternative systems for small communities. Since states with populations that are 25 percent or more rural must set aside 4 percent of their annual alternative systems allotment for small communities, that alone should provide some special incentives for funding individual systems. Individual systems are not eligible for the 15 percent cost preference in the cost-effectiveness analysis.

What Costs are Eligible for Federal Funds?

The entire facilities planning process and subsequent parts of Step 2 are directed toward answering this complex question. As a general rule, the 75 percent federal share can pay for all reasonable Step 1 costs--engineering data, analysis of alternatives, environmental assessment, public participation activities and recreational planning--of a facility that is appropriately eligible on the state Priority List. These costs are outlined and approved in a proposal called a Plan of Study submitted to the state water pollution control agency and EPA before the grant award.

The budget for Step 1 planning is negotiated on a case-by-case basis before the grant is awarded.

Each state is required to reserve 5 percent of its annual allocation for possible increases to ongoing grants, which may be awarded while Step 1 planning is underway. The vehicle used for this increase is a grant amendment that is first submitted and approved by the state agency and then sent to the EPA Regional Office.

Funding eligibility for Step 2 (the design phase) and Step 3 (actual construction) is largely determined by the outcome of Step 1. Federal funds will pay for design and construction of the least expensive treatment alternative that meets required effluent limitations without overriding environmental and social impacts. A number of quite specific requirements (described in Section V) establish the parameters of the so-called cost-effectiveness analysis, which results in the selection of a preferred alternative, its technology, its size and its service area.

The federal government will not pay for: (1) a facility that is larger than necessary for anticipated present and future wastewater flows, as determined by established procedures; (2) a facility designed solely to meet community expansion needs rather than existing water quality needs; and (3) ongoing administrative activities of local government. Grant funds may be used, however, to pay the expenses of staff who are actually producing work for Steps 1, 2, or 3 (i.e., the cost of a grantee construction crew may be eligible for federal funding).

Community leaders planning for sewage treatment now should always keep the next step in mind: The community should either be determining limits to its growth or be thinking ahead toward another round of facility planning and construction.

Some special cost eligibility considerations are worth paying attention to here.

1) The treatment facility must be constructed to treat primarily domestic waste.

2) Advanced treatment (beyond secondary) will receive intense scrutiny from EPA, particularly when the incremental costs of the advanced treatment exceed secondary treatment costs by $1 million (or by 25 percent in the case of innovative and alternative systems).

3) Interceptor sewers are generally eligible if part of a cost-effective system. Generally, collector sewers to serve new communities built after 1972 are not eligible.

4) The cost of land is only eligible if it is used for wastewater storage prior to land treatment, or the

land is an integral part of the treatment system. (In the case of individual systems, land is not eligible at all.)

5) Multiple purpose projects are currently eligible for federal funding only to the extent of the most cost effective alternative designed for water quality only purposes. (This policy is currently undergoing review.)

What are the earliest opportunities to influence the direction of the Step 1 Plan?

Decisions Made by Nonlocal Actors

Before a community begins facilities planning, a number of constraining decisions may have been made through the statewide water quality management process: amount of allowable discharge, boundaries of the facilities planning area, population projections. These decisions are to be made by state agencies or by designated areawide waste treatment management agencies. In fact, according to new EPA regulations these critical decisions must appear in approved Water Quality Management plans. After October 1, 1979, EPA will generally not approve grants for Step 1 planning unless the related information is available in an approved WQM plan.

Establishing Effluent Limitations

The municipal effluent limitation is the specified amount of pollution a community may discharge into surface waters.

Effluent limitations are essentially derived from three sources. First, all municipal dischargers must meet a national minimum standard of discharge that is defined as the discharge level that can be expected from a well operated secondary treatment facility.

Second, if meeting the national minimum is not enough to meet state water quality standards, a stricter standard may be established.

Third, if a facility discharges into marine waters, the EPA Administrator may, under certain conditions specified in the 1977 Amendments, allow a variance from secondary discharge requirements.

Establishing Planning Boundaries

The state's water quality agency will usually determine the planning area for Step 1 grants in consultation with local officials or in the contents of a completed WQM plan. A completed WQM plan must assign an agency to manage planning and construction of waste treatment facilities. The assignment may go to an areawide agency, or the authority may be delegated to the individual jurisdictions in the area.

In the absence of a completed WQM plan, the state water quality agency has authority to establish the local 201 planning boundaries. The boundaries must include the sources of the pollution problem itself; how much other area is also included may directly influence the contents of the Facilities Plan itself.

EPA regulations and guidelines offer some guidance to those who draw these planning boundaries. First, the geographic area must be large enough to assess all potential environmental impacts of any treatment alternative chosen. Planning area boundaries are discussed in Section V. Yet, the establishment of planning boundaries before the facilities planning process begins may in fact establish the basic parameters of service area determinations.

The Statewide Disaggregation of Population Projections

As is explained in later discussions regarding population projections, the states are responsible for breaking down statewide population projections into projections for individual facilities planning areas.

The Priority System

EPA will not award a Step 1, 2, or 3 grant unless a state certifies that the proposed project is entitled to priority for federal funds in accordance with an EPA-approved state priority system and the state Priority List. Within certain constraints, therefore, the state controls the timing and amount of federal funds awarded for the facility planning process.

EPA reviews the criteria and method of application used in developing the state Priority List. The state must determine its water pollution control needs according to categories that are related to the water pollution goals of the Clean Water Act, but can assign any weight it chooses to the various categories when it ranks them.

A public hearing must be held annually prior to the finalization of the state Priority List. EPA reviews the list to make sure that the criteria adopted by the state have been consistently applied and that neither political nor economic factors have entered into selection of projects. EPA may only interfere in a Priority List if an individual project fails to meet the enforceable goals of the Act. An exception to this EPA review is in the case of so-called "pipe projects." Twenty-five percent of a state's construction grant allotment may be set aside for such pipe projects as new interceptors, sewer rehabilitation, etc. As long as these projects are otherwise eligible for construction grant funds, EPA will not review them to see they meet the enforceable goals of the Act.

The Act requires a number of "reserves" or "set asides" from each state's allotment, all designed to serve specific national goals. Of the two most significant reserves, one encourages "innovative and alternative" treatment systems, and the other focuses more federal funds on smaller communities.

A state with a rural population of 25 percent or more must set aside 4 percent of its allotment for small rural communities and other less-populated areas for alternative to conventional sewage treatment works. "Non-rural" states may request up to 4 percent of their allotment for the same purpose.

Treatment works using "innovative or alternative" techniques and processes are allowed an increase in the federal share of total costs from 75 to 85 percent. A state must set aside 2 percent of its allotted funds for these projects. (By 1981 that "set aside" will be 3 percent of the allotment.) One-half percent of the 2 percent allotment must be used only for innovative projects.

The Grant Application

The public body applicant (the grantee) makes a number of critically important decisions before and during a Step 1 grant application. The procedure:

1) A local government official is designated to act for the applicant;

2) Pre-application conferences with EPA and the states sometimes result in:

    a) initial alternatives to be examined and initial direction of the Facilities Plan;

    b) suggested names of consulting engineers who might be hired by the grantee;

3) Subagreements with the potential consulting engineer are frequently drawn up before the grant aplication. The engineer will then proceed to work on the required Plan of Study;

4) A Plan of Study, submitted as part of the grant application, describes problem areas, the scope of the planning effort and the work schedule. Eventually, the Plan will be made part of the grant agreement; its work schedule and cost estimates will be used to determine a formal grant payment schedule. The proposed public participation program, its budget and schedule will also be outlined.

V. THE FACILITIES PLANNING PROCESS

What are the major steps of the facilities planning process?

The fundamental decisions of the facilities planning process are usually made at formal "step," or decision points. Wastewater management officials and consulting engineers generally refer to the following major steps:

- the Plan of Study/grant application
- assessment of the current situation
- assessment of the future situation
- identification of alternatives
- cost/effectiveness analysis
- environmental assessment/Environmental Impact Statement
- selection of recommended alternative

The facilities planning process is in fact, much more complex than a series of seven linear steps. (The 201 Public Participation Guide in Appendix breaks the Step 1 process into 26 decision points.) On their surface the steps appear logical and linear; in fact they bear a somewhat circular relationship to each other. Information gathered and decisions made must be constantly reevaluated as new information becomes available.

Table 1 below is a much simplified description of the major decisions in which citizens will want to get involved during the Step I process.

What are the Important Issues for Public Involvement in Assessing the Current Situation?

This decision point is not just a straightforward data-gathering exercise: it is in fact a critical step for public involvement. Information not gathered, or misinterpreted, may substantially affect the outcome of the facilities planning process.

The infiltration/inflow analysis (I/I), one of the first steps of facilities planning, is a preliminary engineering evaluation of the sewer system to find out how much of the total wastewater flow comes from excessive infiltration into the sewer system from leaky pipes or excessive inflow from various kinds of storm drains. If excessive I/I is found, a more extensive study of the sewer system will be made to determine how much rehabilitation of pipes and drains can cost-effectively replace the need for extra treatment plant capacity.

TABLE 1

MAJOR FACILITIES PLANNING DECISIONS

DECISION POINT	ISSUES	QUESTIONS
Assess the Current Situation	a) gather information on planning area: institutions population environment water quality other environmental conditions b) gather data on: existing wastewater flows existing treatment systems infiltration/inflow analysis performance of existing systems	What are our water quality problems? Are the existing facilities adequate? What unique resources does our community have that are worth protecting?
Assess the Future Situation	a) land use b) demographic and economic projections c) future flow and wasteloads d) future environment without treatment project	How much growth is projected to occur? Are projections consistent with community goals/land-use plans? Are wastewater flow projections accurate? Is a new treatment facility necessary to preserve environmental quality of community?
Identify Alternatives	a) biological or physical/chemical treatment and discharge to receiving water b) reuse/recycling systems c) land application systems d) revenue generating applications e) on-site and nonconventional systems f) sludge and residual disposal alternatives	Is a full range of alternatives being considered including smaller scale, low technology options as well as centralized high technology ones? Is land treatment being seriously considered? Are there opportunities to recycle or reuse treated wastewater? How much treatment capacity is required?

TABLE 1 cont'd.

DECISION POINT	ISSUES	QUESTIONS
Cost Effectiveness Analysis	a) establish present worth of alternatives (monetary value of capital costs plus O&M costs over life of of project. 1) service area 2) service life 3) staging construction b) develop water conservation program c) institutional arrangements for implementation d) environmental impact assessment for each alternative e) recreational use assessment for each alternative f) energy consumption assessment	What sewage treatment alternative has the least monetary cost without overriding environmental and social considerations?
Environmental Impact Statement (EIS)	a) gather additional information on primary and secondary environmental impacts. b) prepare draft impact statement and seek public and governmental review of draft EIS.	Are the environmental impacts identified in the environmental assessment significant enough to warrant a full scale EIS?
Select Alternative	a) develop measures to mitigate primary and secondary environmental impacts b) select site	

Other important questions to ask during the "current situation" assessment concerns the accuracy of the data-gathering.

Have current water quality problems been sufficiently and accurately identified? Are the sources of current wastewater flows known? How well are the existing treatment facilities operated? Have existing population and land use data been properly assessed? Have all environmentally sensitive areas been identified?

What are the important issues for public involvement in assessing the future situation?

How big should a new facility be?

Determining facility size is in part a technical job, based on average-to-peak flow ratios, land slopes, and the like. It is also subject to federal policies limiting grant payments for "reserve" (growth) capacity. The facility should be large enough to last 20 years from its first day of operation.

There are three variables governing facility size that the community can influence: population projections; per-capita wastewater flow calculations; and amount and type of industrial discharge into municipal facilities.

A summary of EPA policies on facility size:

- Population projections for facilities planning areas are generally to be developed by the state from the projections of the Bureau of Economic Analysis, U.S. Department of Commerce. A state's own projections may be used if they are not more than 5 percent greater than BEA's, or if they are approved by the EPA Regional Administrator.
- Wastewater flows are to b estimated from existing water use records, preferably; or by using a specified gallons-per-capita-per-day allowance.
- No allowance is permitted for increased per-capita water use. Quite the opposite. Cost-effective water conservation measures must be included in the wastewater management solution, and the size of the treatment facility should be based on the reduced per-capita flows expected. Public education, pricing policies, and regulatory measures also must be evaluated and included, as appropriate.
- Industrial flows are to be calculated by adding present industrial flows treated in the municipal plant, documented future flows, and an allowance for unforeseen industrial growth.

Assessing Future Land Uses

A community's assessment of its future land uses will partly determine capacity, location and service area of the recommended treatment plant. Local and regional land use and development plans provide a framework for facility planning, as does the 208 planning process. Facilities Plans must conform to the Water Quality Management Plans developed under Section 208.

Yet the water quality management process is not a static process. In fact, Water Quality Management Plans must be reevaluated yearly through a formal continuous planning process. Citizens should have ample opportunity to obtain amendment of a WQM plan if desirable.

The Sewer Issue

New sewers may stimulate new development and generate new wastewater loads. At the very least, if they do not stimulate growth, they direct the location of that growth.

EPA policies on sewers briefly summarized:

- collectors will only be funded when they involve replacement or rehabilitiation of an existing system, or when they are for a community in existence before 1972;
- interceptors are to be designed for a 20-year period, unless a period of not more than 40 years is demonstrated to be consistent with approved water quality and land use plans and will reduce overall environmental impacts.
- interceptor routes may not extend into undeveloped lands, prime agricultural lands and environmentally sensitive areas unless they are demonstrably necessary to alleviate existing problems. If they are determined to be necessary, appropriate measures to mitigate impacts are to be part of the grant conditions and included in the NPDES permit.

What geographic area will the facility serve?

The service area question is essentially this: Is it more effective to link a number of wastewater service areas together into a single large service area with a set of sewers, feeding a single central treatment facility (a system which will likely support additional population and industrial growth); or to establish a number of smaller service areas which are interconnected to a lesser degree or not at all? The answer will determine much about the future size and shape of the community.

Small-Scale Service Area Options

Cost-effectiveness is a controlling federal criterion for service area and treatment mode decision-making. Thus, a community might well be forced to select centralized treatment even though it would prefer individual systems.

The smallest-scale wastewater facility service area is the individual septic system, compost toilet or similar "innovative" system. The 1977 Amendments to the Federal Water Pollution Control Act now recognize these individual facilities as a valid option under the Construction Grants Program.

If individual systems are not a viable option, then attention must shift to some sort of centralized treatment facility served by sewers. Should the community's identified water problems be limited to a few scattered neighborhoods, the community might seek to locate small "package plant" facilities in each neighborhood not interconnected by development-stimulating trunk sewers.

"Package plants"--essentially delivered by the manufacturer in ready-to-plug-in-and-operate condition--can deliver high quality effluent. But either a trained operator should be present at all times, or the plants should be monitored and supervised under a system that assures quick response to any malfunction. In past years, many a package plant has become just one more community headache. Some rural communities have favored growth-restricting, low-technology central treatment facilities, such as stabilization ponds or land application systems, serving small areas.

The Clean Water Act sets aside 4 percent of the construction grant allotment to states with a rural population of 25 percent or greater "only for alternatives to conventional sewage treatment works for municipalities having a population of 3,500 or less, or for the highly dispersed sections of larger municipalities." In other words, as in the case of individual systems, Congress recognizes that some communities will prefer to think small.

The Regional Service Area

Large metropolitan wastewater treatment facilities have long been in vogue for economic reasons--more treatment capability can be provided per dollar, in terms of capital outlay, operation and maintenance. Since 1965, water quality policymakers have favored regional systems for other reasons, too: more professional operation, higher standards of treatment, fewer effluent outfalls which can be sited to incur minimal environmental damage.

A community that selects a regional service area for its new facilities probably will derive three major practical benefits. First, the Clean Water Act gives high priority to regional water quality planning, meaning that both the state water quality agency and EPA are likely to look kindly upon a regional facilities plan. Second, a project designed to solve water quality problems of regional scope will probably draw a higher priority rating from the state than the smaller project. Third, depending on what service alternatives are studied, a regional plan may be most likely to meet federal cost-effective criteria.

A central question is: How big a region? Enough serious disadvantages to large regional facilities have become apparent that regional solutions may have less appeal in the years ahead. By their nature, they tend to rely heavily on technology. Costs of building high technology-based plants are escalating rapidly, and may reach exorbitant levels when "advanced waste treatment" (extremely high levels of pollutant removal) is required to meet effluent standards). And, for a variety of reasons, the time lapse between planning and actual operation of large regional facilities ("construction time") may cause difficulties for the communities being served.

Furthermore, regional treatment plants collect the wastewater they treat through a network of interceptor or major trunk sewers. Development generally follows those sewers, particularly where they cross open land, sometimes bringing unwanted patterns of suburban sprawl.

Finally, regional facilities usually serve more than one political jurisdiction, and therefore require interjurisdictional agreements and flow allocations that can be difficult to negotiate and achieve.

What Range of Alternatives Might be Evaluated During the Facilities Planning Process?

Given all the criteria, standards, and policies that a community must deal with--secondary treatment, effluent controls, water quality standards, cost-effectiveness policy--the community may find that its range of facility options is severely limited. Indeed, those options may depend on the community's influence over facility service area and facility sizing decisions. As the number of variables is reduced, the selection of treatment process may become and more an engineering and economic decision.

Technical possibilities for wastewater treatment are numerous and may be combined in a variety of ways, depending on the imagination of the designing engineer. Advantages and disadvantages of each must be determined in large part for each community on the basis of population, population distribution, land values, geology, climate, and similar factors.

The option of no facility: Are new facilities required?

The first step in facility planning is to determine whether new wastewater treatment facilities are in fact required--or existing facilities can somehow be made to make do. In some communities, identified problems might be corrected by repairs or improvements in the existing system or by modifying the treatment process now in use.

Traditional, centralized physical/biological/chemical treatment and treatment and discharge to waters

An adequate central treatment and disposal facility usually provides secondary treatment to remove about 85 percent of the biological oxygen demand (BOD) and suspended solids (ss). In some situations, advanced waste treatment is needed to remove more BOD, significant amounts of nitrogen, phosphorus, chemicals and heavy metals, and all pathogenic bacteria. Facilities for collection, treatment, discharge, and sludge handling will be included in this option.

Centralized collection, treatment, and land application of effluent, rather than discharge to a waterway

Land application is usually an alternative to constructing an advanced wastewater system, but in some instances may substitute for secondary treatment. Treated effluent is considered a resource and applied to soil and vegetation for crop and soil nourishment and groundwater replenishment. Land application systems include spray irrigation and infiltration-percolation systems, in which nearly all effluent is absorbed into the soil, and overland flow methods, in which wastewater is sprayed over the upper edges of sloping terrain and flows downhill, filtering through grass and other vegetation.

Waste treatment and reuse of purified waters.

This alternative also considers treated effluents to be valuable resources. After the cleaning process, waters and pollutants are reused in industry, utilities, and agriculture, and for recreation, municipal supplies, and groundwater recharge.

On-site waste treatment and disposal.

Septic tanks, cesspools, and other subsurface disposal systems can be used for one or more residences, small commercial establishments, or even small towns and highly dispersed sections of larger cities. Public or central management may be needed to ensure proper maintenance and operation of such facilities.

The most cost-effective wastewater treatment solution for a given area or community is the option with the lowest monetary costs over a 20-year planning period, without overriding adverse nonmonetary costs, that meets all federal, state and local requirements, or subsurface disposal requirements.

Evaluating Monetary Costs of Alternatives

Monetary costs include all capital construction costs (for treatment plants, interceptors, sewers, discharge or reuse facilities and sludge-handling equipment, land, administrative, legal, and interest charges during construction, etc.) and all operation and maintenance (O&M) costs (labor, chemicals, energy, routine replacement of equipment, etc.). Offsetting revenues, such as those from sale of sludge and reclaimed waters, are calculated as financial benefits.

The cost considerations for three major wastewater management alternatives are discussed below. Treatment and reuse systems are not discussed directly since these systems will often use some combination of the first two options. The major difference, of course, will be the revenue value of reused wastewater.

The cost considerations of improvements of existing facilities are too complex to generalize. The basic questions of sizing and service area discussed below will obviously affect costs. In the case of excessive infiltration/inflow, a sewer system evaluation will determine cost-effective sewer rehabilitation measures. Another part of the cost-effectiveness analysis will also recommend measures to reduce wastewater flows and conserve water.

Cost considerations vary for central treatment, land application and on-site facilities.

(1) Centralized physical/biological/chemical treatment costs. Wherever collection of wastewater and central treatment is included in an alternative--as in treatment and disposal, treatment and land application, or treatment and reuse--five major factors will affect the monetary costs of the system: (a) type of treatment technology selected, (b) the volume and makeup of incoming raw wastes, (c) size of the treatment facility, (d) service area, and (e) staging of construction. Site conditions for the treatment works, prescribed effluent limitations and reliability requirements (i.e. extra backup facilities required if there is a fresh-water intake downstream) may also contribute to monetary costs.

A centralized treatment system includes the treatment plant; interceptors and trunk sewers, if separate populated areas are linked; pumping stations and force mains (which move wastewater by pressure rather than gravity) used for connections between natural drainage basins; and the local sewer facility, which includes house connections, laterals, and submains. Of the total cost of a gravity flow sewerage system, lateral sewers ususally account for between 30 and 60 percent, larger pipes between 20 and 40 percent, and treatment plants between 20 and 40 percent.

The most cost-effective system will optimize the costs and performance of treatment plants, sewers, package plants and on-site disposal to produce the best overall system for a region. For example, potential economies of scale in plant construction and operation must be weighed against the rising costs of linking up separate populated areas by interceptors and force mains to create regional system.

(2) Land Application Costs. The monetary costs of disposing of treated effluent on land include the costs of conventional primary or secondary treatment, whichever is required, as well as the cost of land, facilities to transport and store wastewater, spray irrigation equipment or other land application devices, and underdrains to recover renovated water.

Land treatment offers many cost advantages. A very advanced degree of treatment is possible without generating any chemical sludges or using chemicals or activated carbon. Recycled water, nutrients and crops grown in the treatment area have market value. Large open space areas are preserved with potential for multiple recreation use during the nonirrigation season. Land appreciates in value and represents a future resource to the community. Operating costs can be less than for other teriary processes. If land application can be a substitute for secondary treatment, there could be substantial cost-savings.

There are disadvantages, however. Large land areas are required, ranging from 100 to 600 acres per mgd of capacity. In addition, large ponds and other storage facilities are needed to store effluent when the grounds are frozen.

(3) On-Site Facility Costs. The cost of on-site waste disposal facilities--septic tanks, various means of upgrading septic tanks, mounds, and other facilities, as well as holding tanks--figures in the cost-effectiveness analysis when a community must decide whether or not to include outlying sites in a sewage service area. (The funding of individual systems is now eligible for federal funds under certain circumstances, as described earlier.) The question often is: Is it cheaper for a source to use on-site disposal, or be sewered?

In addition to costs, the effectiveness of the on-site system must be calculated. Soil conditions are a key factor in costs of on-site disposal. If soils are not conducive to good subsurface disposal, on-site disposal costs go up. Sewer service may be appropriate even if more expensive than on-site, because of improved ground water quality and elimination of system failure. Typically, septic tank costs include the tank, houseline, distribution box, absorption field, operation and maintenance (pumping and inspection) and cost of financing. Per capita costs could be low, such as $60 per year, or as high as $150 a year, depending on system needs.

Evaluating Nonmonetary Considerations

After monetary costs have been calculated for each major waste management alternative, nonmonetary factors of each are expressed quantitatively, if possible, or more likely, described qualitatively, and weighed against monetary costs. Monetary costs are the most important aspect of cost-effectiveness calculations and will determine a waste treatment choice unless the nonmonetary factors have major consequences. Nonmonetary factors include:

Primary and secondary environmental effects. Primary effects are those directly related to location, construction, and operation of the project. Negative effects might include impacts on ground and surface waters, air pollution from incinerated sludges, odors, loss of open space, noise, and erosion. Primary beneficial environmental effects include recharged groundwaters from land application, restored soils, and irrigation water from parks. Secondary effects are indirect or induced changes in population, economic growth, and land use, and the environmental effects resulting from those changes. For example, unwanted development pressures from locating interceptors in open areas or including less-developed areas in a service district, may result in air pollution from induced traffic to new suburbs or shopping centers, excess energy consumption, and water pollution from urban runoff in newly paved areas.

Reliability and flexibility. A reliable system is one that meets its design efficiency with the anticipated O&M costs and effort. A flexible system has the capability to change to meet future needs--to expand the size of the treatment system, extend sewers to needed areas, upgrade the level of pollutant removal, or switch to wastewater reclamation and reuse.

Implementation factors. A system likely to be approved by local, state, and federal governments, adequately financed, and meeting all legal requirements has the greatest chance of being carried out. Local politics, the amount local funding required, prevailing state and local public health, water rights, water supply, and land-use laws are key implementation factors.

Financing the Selected Alternatives

EPA has a great deal to say about how each alternative treatment will be financed and the local attractiveness of each. It provides federal grants to finance:

- 75 percent of construction costs of the most cost-effective wastewater treatment system, but no O&M costs.

- 85 percent of construction costs of an innovative or alternative wastewater treatment system, if it is not more than 15 percent more expensive than the most cost-effective solution. Land application, wastewater reclamation and reuse and other resource recycling techniques, cost-saving, and efficiency-increasing technology are included in this definition.

- privately owned individual systems for one or more homes and commercial establishments, if the grant is applied for by a public body that certifies public ownership is not feasible and promises that the treatment works will be properly operated and maintained.

- in states where the population is at least 25 percent rural, 4 percent of a state's allocation of federal construction dollars is to be set aside for alternatives to conventional sewage treatment works for municipalities with less than 3,500 people.

The remaining construction costs and O&M costs must be financed by state and local governments. Federal law requires that user charges be assessed against all users of a federally funded system to ensure that all users pay their proportionate share of O&M costs. Additionally, industrial users must pay their share of construction costs, although Congress has put this industrial cost recovery provision into abeyance for 18 months while EPA studies the efficiency and need for such industrial charges.

VII. MITIGATING PRIMARY AND SECONDARY IMPACTS OF WASTEWATER TREATMENT FACILITIES

Construction of sewage treatment facilities most often brings two types of impacts--primary and secondary--which can be both positive and negative. Some negative impacts are inevitable, but most can be avoided or mitigated if recognized early enough in the facilities planning process. Federal law requires grant applicants to identify negative impacts and make efforts to mitigate them.

Primary impacts are those that can be attributed directly to the development of the proposed facility. They include: environmental impacts associated with construction (erosion, sedimentation, noise); economic impacts associated with constructing and operating the facility (capitalization, O&M costs, user charges, etc.); and social impacts, such as traffic disruption during construction or decline in the property value of land adjacent to plant.

Secondary impacts are those resulting from indirect or induced changes in community land-use patterns, population growth, and subsequent environmental quality. They are often long-term and far more difficult to identify. Whereas primary impacts are directly related to the construction process and specific construction activities, secondary impacts result from the placement, sizing, and staging of interceptor sewers and the provision of reserve capacity in them.

Consideration of primary and secondary impacts and mitigating measures during the planning and construction of sewage treatment facilities is required by federal law, specifically the 1972 Federal Water Pollution Control Act Amendments (Section

511(c)(1)), which providesthat the National Environmental Policy Act requirements for Environmental Impact Statements apply to the Construction Grants Program.

Other federal environmental laws administered by EPA and other agencies (i.e., Clean Air Act, Endangered Species Act) also apply to the Construction Grants Program. These laws require EPA to make sure that proper steps are taken to mitigate adverse impacts on specific natural and cultural resources such as floodplains, aquifers and water recharge areas, and archaeologic or historic sites.

How are the appropriate mitigation measures chosen?

There are usually several possible ways to mitigate a particular primary or secondary impact. It is important to select the mitigation measures that best meet a community's particular needs. Several key questions should be asked in the process:

1) What mitigating techniques are available?

Primary Impacts

Noise, odor, erosion, and sedimentation are generally short-term impacts and relatively easy to identify and mitigate. The first step in mitigating these primary impacts involves careful site selection and design based on a detailed inventory of site topography and geology, compact site planning, odor and aerosol sources, noise sources, and maintenance and access requirements, among others.

Careful control over construction activities is the second step--careful timing of construction activities, immediate restoration of disturbed areas, and the periodic wetting of unpaved surface to minimize dust, for example.

A third mitigating step includes operating procedures such as noise control measures within the plant and adequate treatment and disposal of sludge to minimize odor.

Secondary Impacts

Secondary impacts related specifically to the construction of sewage treatment and collection facilities tend to be long-term consequences that are usually difficult to predict. In fact, distinguishing future community changes specifically induced by the construction of a particular facility from those changes that would have occurred naturally over time often involves more soothsaying ability than technical skills. Also, because efforts to control secondary impacts have been initiated only in recent years, little documented experience is yet available to indicate how effective any proposed mitigation measure can be in the long run.

EPA has identified a range of possibilities for mitigating secondary impacts. The list includes:

- Phasing and orderly expansion of sewer service.
- Project changes (reduction in plant capacity).
- Improved land-use planning.
- Better coordination of planning among communities affected by the project.
- Sewer use restrictions.
- Modification or adoption of environmental programs or plans (i.e., state air quality maintenance plans).
- Improved land-management controls to protect water quality (i.e., erosion control or floodplain management ordinances).

2) How feasibly can these measures be implemented?

In many cases, primary impacts can be handled routinely by the facility design or construction contractor through careful site design or environmentally sound construction practices. Secondary impacts, on the other hand, often can be mitigated only by enforcement of land-use regulations or management practices. It is therefore important for a community to assess the political feasibility of adopting or modifying land-use controls.

In situations where state or local land-use controls, such as floodplain ordinances, Air Quality Maintenance Plans, 208 Water Quality Management Plans, or comprehensive growth-management plans are in effect, it may be relatively easy to initiate control of secondary impacts simply by enforcing existing ordinances. But in situations where adequate land-use controls do not exist (which is more often the case), a community may have to adopt new measures to successfully mitigate secondary impacts; if the community resists the concept of land-use controls, this can be difficult.

Timing is a key element in successful implementation of mitigation measures. Impacts should be identified very early in the planning process and a range of mitigation techniques should be considered. For obvious reasons, once considerable time and money have been invested in the development of a Facilities Plan, it becomes increasingly difficult to make design changes.

Another consideration affecting the feasibility of given mitigation measures is the implementation costs to the community. Some mitigating measures, such as reduction in facility size or service area, may actually result in decreased project costs. Others may increase the total cost of the project by a relatively small margin or have no cost effect at all; siting the facility to use prevailing winds as a natural odor control, for example, or using existing trees on site as a natural screen. Of, if the additional costs for a particular mitigating measure are significant (i.e., costs for extending outfall an extra 100 yards), they may be considered eligible for a federal grant; hence, the community share of these costs would be minimized.

However, some mitigating measures (for example, acquiring environmentally sensitive areas to adequately regulate future development) may require community expenditures that are not covered under the construction grant. Communities are often unwilling or unable to finance significant additional costs and most often will seek a less costly alternative.

3) Who has responsibility for implementation?

An equally important consideration is who will have ultimate responsibility for implementing various mitigation measures. In most situations, a number of government agencies, organizations, and individuals may be involved; it is therefore important that their respective roles be identified and that the wastewater management agency have the capacity to coordinate these independent efforts to ensure that the variety of potential impacts is successfully mitigated.

4) What authority and capabilities are available to ensure implementation?

Among other requirements, the Step 1 plan must show that those designated to implement the plan have the necessary legal, financial, institutional, and managerial authority and resources to ensure construction, operation, and maintenance. This means that the plan must demonstrate that the authorities identified to implement specific mitigation measures have the necessary qualifications to do.

What is the Role of EPA?

EPA has the ultimate responsibility and authority for ensuring that appropriate mitigation measures are implemented. No grant is to be issued unless EPA is satisfied that the proposed facilities plan has addressed any and all controversial environmental issues. EPA has developed a series of regulations and guidelines that amplifies the agency's policy on mitigating secondary impacts of sewage treatment facilities.

The EPA Regional Office has responsibility for ensuring that potential primary and secondary impacts are considered by the grantee from the outset of the facilities planning process. If the potential impacts appear significant and adverse, EPA may require that a full EIS (rather than an environmental assessment) be prepared to accompany the Step 1 plan. The Step 1 plan must then include adequate measures to mitigate the projected impacts.

In some cases, the EPA Regional Office may choose to condition a Step 2 or Step 3 grant on the stipulation that specific mitigating measures be adopted by the communities involved. Grant conditioning, however, may not always be the best solution. Although some communities may use EPA intervention as a convenient scapegoat to justify passage of necessary land-use controls, other may resent federal intervention into what they consider "home rule" decisions and be uncooperative.

In fact, the conditioning of grants on the adoption of land-use measures raises a series of legal and political questions about how far EPA can go in controlling what are basically local land-use decisions. Also, if not properly instituted, grant conditions can create a considerable administrative burden within EPA Regional Offices responsible for overseeing local adherence to the conditions. Consequently, most grant conditions that have been imposed have been written in ways that reinforce existing state or local legislation, leaving the adminstrative responsibilities with the local government involved.

PART II

PUBLIC INVOLVEMENT IN FACILITIES PLANNING

What Are the Broad Requirements for Public Involvement Under the Clean Water Act?

Recognizing the federal environmental programs would need strong grass-roots support to be effective, the 1972 version of the Clean Water Act contained a broad directive for public involvement at all levels of water quality decision making. These requirements are found in Section 101(e):

> Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator (of the Environmental Protection Agency) or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.

What's In It For You? Why Get Involved?

Let's face it: A sewage plant lacks the public appeal of a new park, town hall, or highway. The average citizen has little, if any, interest in sewage treatment processes and problems, unless they pose some personal threat to him, his family, or his community. A foul-smelling treatment plant in the neighborhood, sewage seeping up in the street, or escalating treatment costs will grab his attention. But not planning. But when you get right down to it, wastewater facilities are essential to a community. They can significantly enhance or degrade its environment, depending on how well they are planned.

Good planning means more than just professional competence. It means considering a community's character, its environmental and social values, and the attitudes and desires of its citizens. These qualities can only be incorporated through concerted efforts to involve the public in all phases of the planning process.

Public participation makes good sense for several reasons. Open discussion and citizen input can help planners develop plans that reflect community values and concerns. Controversies can be identified early and resolved through compromise and open airing of the issues. Citizens get a chance to have a "say" in how federal and local monies are

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being spent in their communities. And public involvement in community issues gives participants a stake in the project's long-term benefits.

Incorporating public values

Local residents often have a more intemate understanding of particular community problems than the staff or consultants working on a project. Their information is pertinent and up-to-date; they know the community's values, concerns, and goals; and since they will be living in the area long after a project is completed, they are in the best position to decide the future of their community.

Better plans

Public discussion and advice can help the consulting engineer to fine-tune a facility plan to fit the community's special circumstances. Alternative technologies and facility locations must be explored and their ramifications discussed and understood. Citizens can work with the professionals to identify the range of issues that must be considered and can alert the engineers to impacts of special concern.

Assuring reasonable costs

Virtually all wastewater treatment facilities are planned and constructed with public money, and therefore the public has the right and even the responsibility to participate in determining how that money is spent. Increasingly, people want to have a say in how federal dollars will be used in their communities. Across the country, communities have sometimes been wary of accepting federal or state funds for fear of hidden secondary costs. Because it emphasizes public participation, the water pollution control program can foster a working partnership between the public and government so long as attitudes of open planning and mutual problem solving prevail.

Added community benefits

The real payoff of that partnership may come in the form of long-term community benefits. Citizens who participate in planning a project will develop a sense of continuing responsibility for it. They will be the ones who will walk the extra mile to secure added benefits--shorelilne protection, swimming, boating, biking, and so on--that make the difference between an ordinary project and an outstanding one.

Voter support

Most communities will need voter authorization for municipal or pollution control bonds to pay the local share of project costs. Voters who have taken part in planning and who feel they've had a chance to influence the decision-making process will most likely support local financing plans and encourage their friends, neighbors, and community organizations to do the same. People attending public hearings to learn about the project for the first time as a bond election approaches will probably not be so easily convinced.

Resolution of controversies

Controversial issues are bound to crop up in facilities planning, particularly in large-scale projects. It is far better to debate these issues publicly early in the planning stages so that reasonable compromises can be worked out; when the public is kept in the dark, disagreement often erupts too late to make changes in the project without additional expenditures or delays. The engineering consultant who is in touch with community opinion will be able to foresee controversy and can spend more time working with residents to find acceptable alternatives.

Which Major Federal Regulations Give You Access to the Facilities Planning Process?

The requirements governing public participation in facilities planning are principally derived from two sets of federal regulations--40 CFR Part 25, "Public participation in programs under the Resource Conservation and Recovery Act, The Safe Drinking Water Act, and the Clean Water Act," and 40 CFR Subpart E, Part 35.917-1(g) and 35.917-5.* These regulations differ both in breadth and specificity. They can be valuable tools for you during the facilities planning process, particularly if you meet resistance from "official" participants. (See "What Problems Might Be Encountered in Implementation of Public Participation Requirements?" at the end of this chapter.)

These EPA regulations attempt to provide an optimum blend of general goals and objectives for public participation (which can be met by any number of mechanisms selected by the grantee) and more specific requirements. They adopt an active (as opposed to passive) tone, exhorting public officials to seek out and encourage involvement of various segments of the public in decision-making. This activist approach is summarized in the definition of public participation in Part 25:

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* The regulations upon which this discussion is based have not yet been promulgated and are in final stages of appoval at EPA. They should appear in final form in the Federal Register in February.

> Public participation is that part of the decision-making process through which responsible officials become aware of public attitudes by providing ample opportunity for interested and affected parties to communicate their views. Public participation includes providing access to the decision-making process, seeking input from and conducting dialogue with the public, assimilating public viewpoints and preferences, and demonstrating that those viewpoints and preferences have been considered by the decision-making official.

The general public participation requirements of Part 25 apply to:

- EPA activities such as rulemaking, issuing permits and informational materials, significant strategy and policy guidance, and decisions to delegate program activities to state control;
- Developing and implementing activities supported by EPA grants to state, interstate and substate agencies; and
- State administration of certain programs for which responsibility has been delegated by EPA: the Construction Grants Program, State Hazardous Waste Program, NPDES Permit Program, Dredge and Fill Permit Program.

Part 25's general public participation requirements therefore govern all Construction Grants Program activities.

Specific additional requirements for public participation in facilities plans are found in 40 CFR Subpart E, Part 35.917-5,--Grants for Construction of Treatment Works.

Other requirements are found in specific program regulations:

- 40 CFR Subpart E 35.915(d): state priority system and project priority List;
- 40 CFR Subpart E, Part 35.928-1: approval of Industrial Cost Recovery System;

- 40 CFR Subpart E, Part 35.929-2(e): General Requirements for all User Charge System;

- 40 CFR Subpart E, Part 35.940-1(t): Allowable Project Costs;

- 40 CFR Subpart E, Appendix A, Part 8(3): cost-effectiveness analysis guidelines;

- 40 CFR Subpart F, Part 35.1033: state management assistance grants; and

- 40 CFR Subpart G, Part 35.1507-8, 1533: grants for Water Quality Planning Management and Implementation.

The requirements recognize essential differences in the levels of participation to be expected for different kinds of projects. They therefore set up two-tiered approach to public involvement in facilities planning, specifying minimum requirements that virtually all construction grant recipients must meet and some additional requirements to be met only by projects that appear to justify a more intensive effort.

The Basic Public Participation Program

All Step 1 projects awarded after the date of promulgation of these regulations must meet basic minimum requirements for public involvement. Step 1 projects begun before that date will proceed according to previously approved work plans. If these old Step 1's come in for significant grant amendments, however, or decide that an upgraded public participation program would be useful, appropriate public participation requirements may be negotiated.

The regulations describe a Basic Public Participation Program (BPPP), which is the minimum standard for projects except those that the EPA Regional Administrator determines involve only minor upgradings of treatment works or minor sewer rehabilitation. But even those minor projects are not exempted from a required public hearing and public disclosure of costs. Any exemptions from the BPPP must be decided in a public forum. The Regional Administrator must issue a notice of intent to waive public participation requirements and must allow 30 days for public response that might indicate serious local issues that should override the proposed waiver.

To meet the requirements of the basic program a grantee must:

1. develop a public information program designed to bring about public involvement from the earliest stages of the decision-making process. This program must:

- be a continuing program that provides policy, technical information and assistance, and that highlights significant issues;
- include the creation of one or more central collections of important reports, studies, plans and other documents relating to significant decisions or controversial issues. These collections should be housed in convenient locations such as public libraries;
- include the development and maintenance of a mailing list focused on the publics that are or should be interested in the facilities planning process.

2. A program for consulting the public that begins with the selection of the professional consulting engineer and the Plan of Study and continues throughout the facilities planning process. Grantees must provide for early consultation preceded by timely distribution of information.

3. The Plan of Study submitted with the Step 1 grant application must contain an outline of the public participation program that the grantee plans to follow throughout Step 1 process--including:

- a description of the consultation and information techniques to be used;
- the staff and resources to be devoted to it;
- a schedule for proposed public participartion activities; and
- a description of the publics that will be targeted for involvement.

Because the Plan of Study must be submitted before the Step 1 grant award and is not funded by EPA, a more extensive (although still brief) public participation workplan must be submitted to EPA no later than 45 days after the Step 1 grant award. In this workplan, the staff and budget for public participation are to be allocated to categories of activity; specific consultation points where responsiveness summaries (see below) will be prepared are to be noted; and the method of coordinating the Section 208 public participation program with the facilities planning program is to be described.

4. To ensure public awareness of both the project and the public participation opportunities, the workplan and a fact sheet about the project are to be widely distributed to interested groups and individuals. The fact sheet should contain information describing the project, the staff for the project (including the engineer and the grantee staff contact) and any preliminary estimates that are available concerning additional per household costs for upgrading sewer service in the community.

5. The grantee is specifically required to "consult" with the public in the early stages when the grantee and consultant begin assessing the current and future situations and screening alternatives (but before selecting the actual alternatives to be evaluated during cost-effectiveness analysis). A reponsiveness summary must be prepared and distributed after this public consultation.*

6. A public meeting must be held when the cost-effectiveness analysis of the alternatives has been largely completed, but before the alternative plan has actually been selected. This consultation process must also be accompanied by a responsiveness summary that is distributed to the public.

7. A public hearing is to be held in the community to discuss the recommended alternatves prior to the adoption of the facilities plan.

8. A final responsiveness summary and an evaluation of the effectiveness of the public participation program are to be included in the facilities plan that is submitted to EPA (or the state) for final approval.

The Full-Scale Public Participation program (FSPP)

For complex projects of important community significance that justify a more intensive public involvement effort, the regulations outline a Full-Scale Public Participation (FSPP) program comprised of all elements of the basic program plus a few additional ones. The Regional Administrator must order a full-scale public participation program under the following conditions:

- when EPA prepares or requires the preparation of and Environmental Impact Statement;

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* A variety of consultative mechanism may be utilized to meet this requirement--workshops, public meetings, task forces, etc. Some of these mechanisms are described in the companion volume to this book entitled Municipal Wastewater Management: Citizens Guide to Facility Planning.

- where advanced wastewater treatment (AWT) is required to meet stringent, effluent standards; (AWT will be defined by EPA guidance. The currently accepted definition is treatment requirements of less than 10 milligrams of BOD per liter plus nitrogen removal.);

- where the Regional Administrator determines "that more active public participation in decision-making is needed because of the possibility of particularly significant effects on matters of citizen concern, as indicated by one or more of the following:"

  - changes in land use and/or impacts on environmentally sensitive areas;

  - significant increases in treatment capacity, amount of sewered area, or construction of new treatment and conveyance systems;

  - substantial increased total cost to the community or to users;

  - significant public controversy;

  - significant impact on local population or economic growth; and

  - substantial opportunity for implementation of innovative or alternative wastewater treatment technologies or systems.

In addition to meeting the public participation requirements of the basic program, a grantee with a full-scale public participation program in its community is required to:

1. Hire or designate a public participation coordinator who will be responsible for carrying out the public participation workplan throughout the facilities planning process. The coordinator can be a member of the grantee staff, a staff person hired by the grantee's consultant, or a representative of a public interest group within the community. (For example, a local civic leader with grass-roots ties throughout the community may make an ideal public participation coordinator.)

2. Establish an advisory committee shortly after acceptance of the Step 1 grant award. Regulatory requirements establish the membership, responsibilities and resources of this committee. These requirements were designed to ensure that the advisory committee encourages the continued attention of a core group of informed citizens--in a manner that complements other

public participaton mechanisms--without becoming the sole mechanism for public involvement. Membership requirements also are designed to ensure that people who do not normally have regular access to the decision-making process be can singled out for service on advisory committees.

Some of the most important requirements that apply to advisory committees are:

- Affirmative action is required on the part of the grantee to ensure a balanced membership, consisting of substantially equal proportions of private citizens, representatives of public interest groups, governmental officials, and citizens with substantial economic interests. Private citizen representatives should not have any direct financial gain or loss at stake greater than that of the average homeowner, taxpayer, or consumer. The public interest groups should be organizations acting out of general concern for the area and should not reflect the direct economic interests of their membership.

- The grantee is required to designate (or have his contractor designate) a staff contact responsible for day-to-day liaison and coordination between the advisory committee, the grantee and the grantee's consultant. This staff contact may or may not be the public participation coordinator. In either case, the staff contact must be located in the project area, not based in another city. The staff contact must be identified as a budget item in the grant agreement.

- The grantee must establish an operating budget and identify the professional and clerical staff time that will be made available to the advisory committee.

- Reasonable out-of-pocket expenses of advisory committee participation will be reimbursed by the grantee. The total dollar amount and the actual items eligible for reimbursement will be established by the grantee after negotiation with the advisory committee.

- The advisory committee may on the request of the grantee assume responsibility for the overall public participation program. The committee also will make written recommendations to the grantee, as appropriate, on major decisions or upon the request of the grantee.

- The advisory committee is reasonably independent: it may select its own chairperson, adopt its own rules, and schedule and conduct its own meetings. These meetings are to be open to the public.

- Advisory groups are urged to conduct public participation activities in conjunction with grantee, and to solicit outside advice. They are encouraged to form subcommittees and ad hoc groups or task forces in order to continually expand committee membership and to draw on other resources outside the membership.

Many other specific requirements that establish the roles and responsibilities of advisory committees are spelled out in the EPA general regulations on public participation (Part 25). You should read them over if you want to understand this critically important component of the full-scale program.

3. The full-scale public participation program requires that a public meeting be held early in the facilities planning process at the time when current and future situations are being identified and initial alternatives are being screened. (The basic public participation program simply requires an unspecified "consultation" at this point.) After this meeting the grantee is to prepare and distribute a responsiveness summary (see below).

4. EPA has developed a technical training package for advisory group members and local officials, which the grantee should arrange to have provided to the advisory group early in the facilities planning process.

Other public participation requirements applicable to the basic and full-scale programs

Many other requirements apply to how public participation programs are carried out; some address the important issues of compliance and enforcement. To completely understand the public's right to involvement, you must read carefully the relevant regulations.* Some of the most important ones are listed here:

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* The regulations are listed in Appendix A. They may be obtained from the Regional EPA office, or may be located in the appropriate Federal Register volume in public libraries, or by writing to the Government Printing Office in Washington, D.C.

1. Agencies are encouraged to provide free copies of important documents to the public. When not available for free, however, the charges for such documents should not exceed prevailing commercial copying costs in that area. In other words, if you could go to a commercial copier and have a document copied for $.25 a page, a local government grantee or his consultant should not charge you $2 a page to copy that document. If you come up against apparently excessive charges for copies of information, you should request an explanation from the grantee or consultant. If such explanation is not satisfactory, you may wish to complain to the EPA Regional Administrator (or the State Agency) regarding the adequacy of the grantee's public involvement effort.

2. In an attempt to define what constitutes adequate public notification of major decisions for which an agency is seeking public input, Part 25 specifies that responsible agencies must provide written notice to those people who appear on the required mailing list or applicable portions of that list, as well as to the media. To ensure that notice of impending decisions is provided far enough in advance to allow meaningful public response, such notice is to be generally not less than 30 days (except in the case of public hearings or meetings).

3. All public hearings on facilities plans (or any other decision covered by Part 25) must meet certain minimum requirements:

- notice mailed in time to be received by potential participants 30 days prior to the date of the hearing (except in emergency situations possibly posing imminent danger to public health);

- the notice is to contain information on the issues to be discussed at the hearing, and any tentative derminations that have been made, as well as information on the location of relevant documents;

- relevant documents must be available to the public 30 days before the hearing;

- hearings must be held at times and locations that will encourage public attendance and involvement;

- time must be reserved for unscheduled testimony during the hearing. Decision-making agencies are encouraged to hold a question-and-answer period before public presentations begin at the hearing;

- a complete hearing record is to be prepared and made available at no more than cost to anyone who requests them.

4. Public meetings requirements are somewhat less formal than those of public hearings. They are subject to the same notification requirements however. Meetings must also be held in locations and at times that will encourage public involvement. The notice requirement for public meetings is also 30 days.

5. Responsiveness summaries are a major tool developed by EPA to assure not only that the public is asked for its input, but that the asking agency in fact responds to the input it receives. The responsiveness summaries, required at specific points in the facilities planning process by regulation (and when specified by the public participation workplan), will be used by the state agency and the EPA Regional Office to determine the adequacy of the public involvement effort. They must contain the following information:

- the public participation activity conducted;
- the issues on which the public was consulted;
- a summary of the public views; and
- the Agency's specific responses to the public views (modifications to the proposed action or explanation of why the public views were rejected).

An evaluation of the public participation program must be submitted by the grantee as part of the final responsiveness summary at the conclusion of the facilities planning process when the facilities plan is submitted to the state or to EPA for approval. For full-scale programs that have an advisory committee, a separate evaluation from the committee should accompany the responsiveness summary.

How Will Public Participation Regulations Be Enforced? Who Will Enforce Them?

Responsibility for ensuring compliance with public participation regulations will fall to either the EPA Regional Office or to the state water quality agency (in states where that agency has been delegated the management of the construction grants program). The reviewing agency must analyze the public participation outline (a component of the Plan of Study) before it ever awards the Step 1 grant to be certain that there is a reasonable expectation of meeting the public participation requirements during the facilities planning process. No grant is to be awarded unless EPA is satisfied that these requirements have been met. Even in the case of a delegated program, EPA still has the responsibility for final award of the Step 1 grant. If you are concerned that public participation will be inadequate in your community, you will first make that case to the state agency. If it is not responsive, you will wish to contact the EPA Regional Administrator and make your point at that level.

EPA (or the state agency) is required to evaluate grantee compliance with public participation requirements at various stages when the Facilities Plan is in progress and after it is completed. Using the workplan, responsiveness summaries and other available information, the overseeing agency must judge the adequacy of the public participation effort. At a minimum, this evaluation must take place both during a mid-project review that EPA conducts in conjunction with its regular oversight activities, and at the end of the facilities planning process. If EPA or the state determines that public participation activities have not been adequate, the reviewing agency is required to take whatever actions it deems appropriate to mitigate the failures and prevent them from being repeated in the future. The enforcement action that EPA is required to take is fairly minimal--it must simply impose more stringent requirements on the grantee for the next funding cycle. But there are much more powerful enforcement actions available to EPA: it may terminate or suspend the grant, withhold payments, and ask for its money back. It will be up to you, the concerned citizen, to see that appropriate enforcement actions beyond the minimum are in fact taken.

How Will These Regulations Affect What Happens in Your Community?

The federal regulations described above simply provide a framework for the development of a public participation program. In fact, given the number of institutional actors involved, the only thing you can be certain the regulations will accomplish is providing some minimum level of funding eligibility for public participation activities during the facilities planning process.

The regulations will also establish a skeletal outline of a public participation program for your community. How that outline is fleshed out will be partly up to you and partly up to the local government recipient of the Step 1 grant. You will want to work with the grantee in your community to ensure that:

- the public participation program imaginatively meets the needs of your community;

- the significant publics in your community in fact participate in the facilities planning process;
- the publics that are asked to be involved are sufficiently informed of the issues to participate effectively; and
- the views of the public are listened to and responded to by the grantee and his consultant.

How Should a Public Participation Program Be Developed? What Will Be Its Major Components?

Designing a public participation program is (and should be) the responsibility of the local government grantee, but the informed citizen leader can be an invaluable resource. In fact, EPA regulations require consultation with the public in program development.

As noted earlier in this chapter, a grantee entering the Step 1 planning process must provide a brief outline of a public participation program in its Plan of Study. EPA has emphasized the brevity of this outline because the development of the Plan of Study is not eligible for construction grant funds. Nonetheless, this early outline will be extremely important since it provides the basis for funding of public participation activities during the Step 1 process. It must contain enough information to allow EPA or the state agency to decide whether the proposed public participation program is adequate. As the grantee is required to consult with the public during the development of the Plan of Study, you may have an opportunity to influence the course of the facilities planning process at this point.

No later than 45 days after the Step 1 grant award, a more detailed-though still brief--public participation workplan must be submitted to the reviewing agency. The local grantee is specifically directed to distribute the workplan to interested groups. Although the brief outline in the Plan of Study is subject to public consultation, the workplan need only receive such scrutiny as is given by the advisory committee.

If you believe that the public participation program outlined and approved in the Plan of Study is inadequate, the workplan developed after the Step 1 grant represents a second chance. A revised program submitted as part of the workplan may even provide the basis for a grant amendment to increase the dollar resources spent on public participation in Step 1 planning.

Tables 2 through 8 in Appendix B are designed to help you to develop a Plan of Study outline and a workplan. Table 2, a 201 Public Participation Planning Guide, divides the important community issues of the construction grants program into 26 separate decision points, beginning before the Step 1 grant award and ending after the Step 3 grant award. Issues to be resolved at each decision point are briefly identified and discussed, public participation requirements are listed, and optional, additional activities are recommended.

Tables 3 through 8 provide model public participation outlines (required during the Plan of Study) and workplans (required 45 days after grant award) for both the basic and the full-scale programs. You may wish to encourage the grantee in your community to use some version of these model workplans in its submissions to EPA. (Please note that these workplans were designed for communities of roughly 5,000-10,000 people. Your public participation workplan may vary considerably depending upon the size of your community and the scope of your project.)

When you become involved in developing the public participation workplan, you will find that you must address three decisions at the outset:

1. identifying major community issues to be addressed during facilities planning, including among others:

   - growth, land-use issues;
   - sensitive environmental areas;
   - costs to the community and per household; and
   - industrial discharge problems (pretreatment needs, extra capacity needs, etc.).

2. identifying the publics in your community that should be particularly targeted for public involvement; and

3. identifying appropriate mechanisms for your community in developing a public participation program.

When these initial decisions are made, the key issues remaining will involve setting up opportunities for public participation in your community. The factors that affect these opportunities will be:

1. identfying appropriate staff and budget resources to ensure that public participation activities take place;

2. identifying and scheduling of decision points where it will be most appropriate to seek public involvement in the decision-making process;

3. identifying and developing information, materials and training opportunities to facilitate public involvement.

The important facilities planning issues you are likely to encounter in your community are discussed throughout this manual (Please refer to Table 2 for a further discussion of the issues and their relationship to the public participation program.)

Two other major decisions determine the scope of the Step 1 public participation program--identifying the public and identifying the mechanisms to reach these publics.

Who is the public?

Government officials who grapple with the requirements of 101(e)--or other mandates for public participation--often begin with the question, "How do I identify the public?"

It can be argued that there are four publics: (a) the general public, popularly known as "the man in the street"; (b) the organized public, whose citizen activities are channeled through organizations; (c) the representative public, made up of elected and appointed officials; and (d) the economically concerned public--those individuals and institutions whose interests may be affected, adversely or favorably, by water quality policies and decisions.

Each of these publics obviously has a right to express itself on all issues, and their input should be sought at appropriate times. The organized public, however, has already demonstrated its interest in the issues and its determination to be heard. All public participation programs should seek ways to involve organized publics that have particular power and interests in the community and that are likely to be affected by the results of the facilities planning process.

As you develop a Step 1 public participation program, you should also be particularly attuned to ways that facilities planning issues touch the interests of publics in your community not normally involved in water quality issues.

Major new treatment facilities or extensive expansion of interceptor sewers will affect all segments of a community in some manner. Certainly the local share of financing and operating and maintaining the facilities will be borne by the community as a whole. Some segments of the public, however, may be more affected than others depending on the proposed project.

Extending interceptor sewers into an agricultural area will certainly concern farmers and ranchers. Pressure for new residential and commercial growth may push up land values, forcing farmlands out of production because of higher taxes. When facility planning contemplates service to rural areas and/or expansion of interceptors through agricultural or ranch lands, farmers, ranchers, and rural organizations like the Farm Bureau should be informed of the planning and encouraged to participate in evaluating alternatives and potential mitigation measures.

Expanding interceptor lines to rural areas may also contribute to deterioration of the inner city as residents, businesses, and service organizations relocate in the new suburbs. Low income and ethnic populations that are unable or unwilling to move may be forced to cope with dwindling services and inferior living conditions as city resources are redirected to developing suburban areas. Inner-city jobs may also be affected as businesses shift to the suburbs; inner-city residents may have to commute long distances to their jobs. Neighborhood organizations, labor unions, and ethnic groups who will likely be affected by such a population shift should be involved in any facility planning that may induce significant new suburban growth.

Potential deterioration of environmental quality will concern many community organizations and may have significant impact on specific segments of the public. Potential air quality deterioration, for example, will have special consequences for the elderly and the chronically ill. Environmental and public health organizations should be involved in resolving these issues, as well as any solid waste problems generated by sludge disposal or degradation of underground water supplies or wetlands.

Environmentalists will also be worried about potential destruction of natural areas, animal habitats or biological systems. Bird watchers and nature photographers may want to participate in decisions that affect natural areas, while sport fishermen will have a stake in preserving aquatic life. Professional fishermen will have concerns about potential water quality deterioration caused by increased urban and construction runoff.

Aesthetic deterioration that could occur in the vicinity of the treatment facilities themselves will be of special concern to nearby property owners, neighborhoods, and to civic and business associations in the area. Early involvement of these groups as well as beautification, parks and recreation organizations may eliminate controversies over location of the facility and provide for mitigation of site and odor problems.

What Are the Public Participation Tools?

Public participation can cover a wide range of activities designed to inform and involve the public. Most of the mechanisms of public participation fit into one of three categories, as indicated by the chart below:

Education/Information	Review/Reaction	Interaction/Dialogue*
Newspaper Articles	Public Hearings	Workshops
Radio and TV Programs	Survey Questionnaires	Special Task Forces
Speechs and Presentations	Public Inquiries	Interviews
Field Trips	Public Meetings	Advisory Boards
Exhibits		Informal Contacts
School Programs		Study Group Discussions
Films		Seminars
Brochures		
Newsletters		
Reports		
Letters		
Conferences		

Some of these mechanisms (workshops, newsletters, coalitions) can be initiated by either citizens or by public officials. Others, however, (public meetings and hearings) remain exclusively with the powers of public officials.

Obviously, different mechanisms are used for different publics. For example, an information program aimed at the general public should be designed to:

a. Generate interest;

b. Provide enough information on the legal and regulatory framework to enhance public understanding;

c. Provide access to planning documents and other relevant information;

d. Provide information on opportunities for public participation; and

e. Elicit reaction to potential decisions.

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* Katharine P. Warner, "Public Participation in Water Resources Planning," University of Michigan, Ann Arbor, 1971.

In a program for the general public, these points are listed correctly in descending order of priority. An information program aimed at the organized public, however, would give its greatest emphasis to the last three purposes and, ideally would include an additional purpose:

f. Provide technical assistance for citizens groups seeking to effect community goals and to explore different ways to meet those goals.

Many citizens organizations are knowledgeable about interpretating statistics, computerized data, and highly sophisticated reports. Such groups should be given opportunities to respond to the most up-to-date information about a given program. A program that makes information public should be more than merely a device to communicate decisions already made.

As you design a public participation program that fits withint the framework of EPA regulations, be creative in your interpretation of these regulations. Certain parts of the regulations may be more flexible than is initially apparent. For example, both the basic and full-scale public participation programs require public meetings to consider the issues raised at specific decision points. A public meeting, however, is simply a gathering of individuals to interact face-to-face. There are many different kinds of public meetings. As well as different kinds of institutional settings under which the meetings are sponsored.

Even the apparently rigid structure and roles of advisory committees specified by regulation sometimes lend themselves to flexible interpretation.

Education/Information Mechanisms

The educational tools designed to promote the quality of public understanding of issues have a special role to play in the Facilities Planning process. These tools must deal with the informational needs of both the most and the least sophisticated publics in your community. These tools will be used to:

- familiarize the public with the nature of the water quality problem being addressed during the Facilities Planning Process;

- apprise the public of key issues that may be of community concern;

- apprise the public of opportunities for input into key issues; and

- provide detailed information in lay language on the technical and political aspects of wastewater management.

The use of informational tools will be essential to the conduct of any public participation program--whether conducted by a local government entity or by a citizen organization. These informational mechanisms cannot be the end of the public participation program, however. Meaningful public involvement will require the use of reactive and interactive mechanisms as well.

Public Participation Outline or Workplan

New public participation regulations require the development of a public participation outline to be submitted with the Plan of Study at the time of grant application. This outline will set forth budget and staff responsibility as well as a schedule of proposed activities. The outline will be revised in the form of a more detailed workplan after the grant award has been made. In this workplan resources will be directly related to activities, specific responsiveness summaries will be identified, and coordinating mechanisms between 208 and 201 planning will be noted.

The public participation outline and workplan must not only be thought of as a planning tool, but should also be viewed as a public involvement tool. One of the most difficult tasks of the public participation professional is to make certain that the level of participation is relevant to the interests and needs of the community and the proposed project. If the development of the public participation outline or workplan is viewed as an opportunity to obtain public input into the scope of the overall effort, it can be a useful technique for assuring relevance.

In addition, the public participation outline or workplan can be a useful public information device. If presented in a clear and concise format it can apprise potential public participants of:

- issues that have been singled out for particular attention;
- participation opportunities;
- important project staff contacts.

Mailing lists

The development of a comprehensive mailing list of all organizations and individuals likely to be interested in or affected by facilities planning should be one of the first steps in a 201 Public Participation Program. It will be required by the new public participation regulations. The list should include pubic officials, business and civic groups, public interest and environmental organizations, and representatives from outside the planning area such as downstream residents who may have an interest in the project. The list should be supplemented throughout the planning process as more people become aware of the project, attend meetings, and ask for information. The mailing list will be useful for distributing newsletters, fact sheets and other information materials and meeting and hearing announcements, and for conducting surveys or widespread public consultation activities. Citizen groups should be involved in developing such a mailing list, both for themselves and for the use of governmental agencies with public participation responsibility.

News Media

Newspapers, local magazines, and radio and television stations reach the general public and help to stimulate interest in the project. They should be kept informed of all items of general interest. Key issues should be clarified and made interesting to news editors and environmental reporters through news briefings and special media events, such as a visit to a discharge point causing pollution problems.

Except when used to support in-depth feature stories, the background material prepared for news items should be brief and nontechnical. When technical or complicated information is to be included in an interview or media event, it should always be concisely stated in a fact sheet and included with a brochure and/or background materials in a press kit. Press kits should be prepared for all events that you hope will be covered by the media.

In order to use the media effectively you should consider undertaking the following activities, early in the Facilities Planning Process:

1) Visit media offices at the beginning of the process.

   (a) identify key personnel responsible for covering stories that might be related to the project.

   (b) learn media requirements for stories--deadlines, filming requirements, requirements for public announcements.

2) Hold background briefing for media personnel identified. Learn from media personnel what kinds of issues are likely to receive media attention.

3) Develop a media plan which will anticipate media coverage for various aspects and stages of the planning process. The plan should include:

   o news releases about specific aspects of the planning process, such as hearings, appointment of advisory groups, and workshops. In order to ensure arrival at the appropriate desk, these should always be hand delivered.

- public service announceents (PSA's) for radio and television stations to publicize meetings and hearings or to call attention to some aspect of the plan, such as selection of alternatives. Radio stations will usually prepare PSA's from written copy sent to them. Television stations may request someone to appear in the PSA, or they may want to film on location. It is always best to handle these arrangements in person.

- participation in radio and television talk shows. Make sure the individuals who appear are able to respond to a wide range of questions in an informative and congenial manner.

Publications

Publications may consist of such things as published versions of draft components of the Facilities Plan, draft and final Environmental Impact Statements, or of a variety of short brochures, flyers, fact sheets or bulletins designed to facilitate public input to the Facility Plan. These publications may be stored in depositories, handed out at meetings, enclosed with mailings, and supplied to the media.

- Flyers: A flyer should be very brief--one or two pages, perhaps include a picture or two. It might explain the purpose of the facilities planning process and give the name, address, and phone number of the consulting engineer and/or the public official in charge of the planning.

- Brochures: A brochure is a brief booklet which may, for example, describe the need for the project, refer to federal and state laws and regulations, detail various stepsin the planning process, and provide background information for new advisory committee members, government officials, newsmen, and other interested persons. A summary of the draft Facility Plan might be distributed as a brochure, prior to the final public meeting.

- Fact Sheets: Probably one of the most useful publications will be the fact sheets, each on a single issue of concern in the project, such as population projections, user charges, treatment methods, secondary impacts of growth, etc. Fact sheets might also be used to outline the consequences of alternative approaches and draw upon the experience of other communities where appropriate.

- Technical Bulletins: It might prove advisable to prepare one or more detailed publications about the technical aspects of the plan, such as waste-load allocation, for distribution to advisory committee members and other specialized interests.

Both the community leader and the grantee developing publications will want to be aware of the many publications already developed by EPA, by your state agency, and by others (such as those developed for The Conservation Foundation's training program). Preparation of publications can be costly. Use should be made of existing general materials whenever possible, with new publications focusing on the specific community situation. The EPA Office of Public Awareness may be able to help you locate appropriate materials.

Newsletters

A newsletter should be published at regular intervals and mailed to persons and organizations on the project's mailing list (or on a list compiled by community leaders). For maximum utilization, the newsletter might be designed as a slip sheet that can be distributed with organizational mailings.

A newsletter is usually started early in the planning stages and continued throughout the planning process. It is an excellent way of reporting a variety of news to those either are interested in or whom may become interested in the Facility Planing.

Some of the types of articles and information appropriate to newsletters include: general water resource and water quality news; feature articles explaining alternative plans and technologies; summaries of relevant workshops and meetings, hearings, meetings and workshop notices; responsiveness summaries; reports or recommendations of an citizens advisory committee; and letters to the editor.

Information Depositories

The local governmental agency is required by regulation to maintain a central information file or depository which includes significant project documents. Ideally these depositories should:

(a) be in buildings (such as libraries) whose hours open facilitate community use;

(b) have copying machines on the premises;

(c) in larger communities be in a number of locations;

(d) for more complex projects have staff support (perhaps volunteer) to assist any search for materials.

Speaches

A number of forums can be selected for speeches and audiovisual presentations on the facility planning project. Appropriate forums include service clubs, regular meetings of civic groups, churches, environmental organizations, chambers of commerce, and educational institutions. A speakers' bureau including authorities on several aspects of the planning process should be organized. The consulting engineer, members of his technical staff, advisory committee members, and other community leaders knowledgeable about the planning should be invited to participate.

Speakers should possess effective speaking ability and be able to tailor their remarks to the interests of the groups to be addressed. Presentations should be prepared on a variety of topics, and then be used as a basis for individual talks. Handouts, slide shows, and exhibits will assist in making a speaker's presentation more interesting and understandable.

Exhibits

Exhibits are visual displays which may be as simple as maps, charts, and diagrams or as sophisticated as a walk-through maze which allows the participant to make alternative selections regarding the future growth and character of his community. Simple exhibits may be used in conjunction with public meetings, hearings, speeches, or seminars. More sophisticated displays may be stationed in public buildings or shopping malls where they can reach large numbers of people Large exhibits should be designed to both provide information and receive public input. They are best managed if constructed so they do not require an attendant.

Reactive/Interactive/Dialogue Mechanisms

Most of the mechanisms described below can be considered reactive or interactive depending on how the information obtained will be used: Will the mechanism be used simply to obtain public response to an agency decision (Reactive) or also to allow an agency to respond to considerations posed by the public (Interactive)?

Functional two-way communication can help keep officials in constant touch with the needs and expectations of the public. Basic organizational and administrative techniques, such as those discussed below, can provide the framework for public involvement.

Public Participation Coordinator

For effective implementation a comprehensive public participation program will require a public participation specialist. Few engineering consultant firms or municipalities currently have the necessary expertise within their existing staffs to undertake this function.

A public participation specialist should have expertise working with community action groups, either in a paid or voluntary capacity. He or she should also possess communications skills --know how to work with the media, prepare publications, run workshops, organize meetings, and work with the public effectively.

The job of the public participation coordinator is to facilitate public involvement in the facilities plan. In facilitating this involvement, the public participation coordinator will need to understand how best to contact the publics in the community in which he or she is working, as well as what issues will be important those publics? Who should be called in order to obtain a certain level of citizen input at a particular decision point? What kind of information will be needed by the publics in the community in order to participate effectively in key decisions?

A public participation coordinator is required in the Full Scale Public Participation Program (FSPPP) described earlier in this book. Although not required in the Basic Public Participation Program (BPPP), these communities may also wish to hire such a public participation specialist.

Several options should be considered in providing for a specialist:

- He/she might be hired directly by the engineering consultant. This will assure a close tie with the technical and planning staff, but may provide a less objective evaluation of the alternatives and options selected by the engineer.
- The local government might hire a public participation consultant and provide the support staff.
- A specialist might be shared by the 201 and 208 programs if the planning areas correspond.
- A private individual or public interest organization could be contracted to act as the public participation coordinator and to implement the public participation work plan.

The latter staffing arrangement, may provide several advantages. The individual hired will be from within the community, and will have inside knowledge of community issues as well as considerable creditability as an objective source. It is also quite likely that either a private individual or a public interest organization will represent be a less costly staffing arrangement than hiring someone on the consulting engineers staff (or on the grantee's staff). A possible disadvantage of this staffing arrangement would result if either the grantee or the consultant were reluctant to place trust in and store information with the public participation coordinator because he or she is not perceived as a member of the of the team.

Consultations

The word consultations means the act of seeking advice and exchanging views. A variety of formal and informal mechanisms can be utilized to fulfill the consultation requirements of public participation regulations. Some of these mechanisms are:

Informal consultations

Face-to-face interviews or conferences, are useful both for transmitting information and for receiving pubic input. Consultations will be needed throughout the planning process, but particularly in its early stages. Interested citizens and organizations should initiate discussions with governmental decision makers when they have information to offer, or issues to be resolved.

Consultations initiated by citizen organizations often will be most useful if arranged on an ad hoc basis covering specific issues of concern to that organization. Such activities will often be particularly well-received by a governmental agency when they involve a number of different organizations representing a variety of interests. On the other hand, effective advocacy of a particular position may require that the organizations requesting the consultation come from similar interests.

Task Forces

A task force is usually a small group of people, including some with special expertise, which is assigned to research or resolve a specific problem in a limited time frame. Task forces may look at problems which are generally outside the purview of civil or sanitary engineering studies, such as secondary impacts of growth and related air pollution problems.

Frequently the work of a task force will require some understanding of technical issues relating to the facilities planning process. With appropriate assistance from staff involved in the planning for municipal wastewater management, citizens' organizations are often able to study problems and arrive at creative solutions that might not otherwise be considered to be politically acceptable.

The problem to be considered by a task force should be clearly defined before its members commence work. A work schedule should be prepared, and a fair cross-section of knowledgeable persons representative of a range of viewpoints should be selected to serve. Task force members should be furnished with sufficient background information to enable them to thoroughly understand the problem at hand and to deal with it in a short period of time. One person (either on the Task Force or serving as staff to the task force) should be appointed to formally summarize the results, including any missing data or unresolved issues.

Workshops

A workshop is a small group meeting at which all participants have some familiarity with the topic to be discussed and are afforded the opportunity to comment in considerable detail. Such meetings are particularly useful in the middle stages of the planning process when the basic facts are known, but the alternative proposals have yet to be thoroughly examined. Workshops require substantial preparation time to be successful, but offer one of the most useful ways to explore in depth what people think about the ramifications of the facility plan.

In order to ensure a successful workshop, the organizer should undertake the following preparations:

- succinct definition of the objectives of the workshop. What are participants expected to accomplish;
- preparation or identification of materials to be distributed to participants before the workshop that will facilitate discussion during the workshop;
- a briefing of speakers and resource people on what their roles are to be and what information they will present;
- attention to the administrative details of the workship to minimize confusion and maximize the comfort of participants (i.e., Will the workshop take place over a meal time? Will meals be provided? If not, where can participants go to quickly grab a bite to eat? etc.)

Surveys

Several kinds of surveys can be used in planning sewerage treatment systems. A technical survey might be designed to elicit information from those with technical knowledge, such as agencies and corporations which are discharging pollution into the waterways. A general survey designed to gauge public opinion and pinpoint community values and goals might be circulated before selection of alternatives in order to determine public response to such alternatives as voluntary or mandatory flow-reduction programs. Or residents might be asked to respond to questions regarding the condition, problems, etc. of their on-site disposal systems.

Data collection through surveys can be very useful.

In the Buffalo, New York 208 plan for example, a survey revealed a depth of public support for improved water quality that led to stronger implementation recomendations than the decision makers would have otherwise supported.

Surveys can also be expensive and time consuming. Those planning to conduct a survey should consider using academic resources as a source of volunteer assistance. For example, university students may be available to help in the preparation of a survey including pre-testing that survey. High school classes, or scouting groups might be willing to help distribute a survey and compile resulting data.

Citizen Advisory Committee

A formally constituted Citizens' Advisory Committee (CAC) has the potential for serving as an institutionalized consultation mechanism with the ability to provide continuous input to each stage of the planning process. If properly balanced and adequately staffed (representing a broad base of community interests), a CAC may ensure that important knowledgeable interests in the community will have continuing input into the planning process.

Citizens' advisory committees have been utilized in various environmental programs throughout the years, and they have been the subject of considerable well-founded criticisms. The criticisms leveled at CAC's have basically fallen into the following three categories.

- Their membership is often dominated by interests with an economic stake in the issues under consideration. While CAC's may be designed as a means for regularizing and institutionalizing the input of those with limited access to the decision-making process, they frequently do not achieve those goals.

- A CAC may become a barrier to public participation if it is viewed by the sponsoring agency as the whole public participation program. If the local government only consults with the CAC, then the decision maker simply receives the thoughts of another group of people who may or may not represent the general public.

- A CAC may be ineffective if their role is poorly defined, or staff support is inadequate regardless of whether or not it is appropriately constituted.

Citizen Advisory Committees are required as part of the Full Scale Public Participation Program. They are not required for the Basic Program, but may be suggested. Citizen organizations should be carefull not to blindly promote a CAC as a key activity of a public participation program. If CAC's are selected as a public participation method be sure to give equal attention to the makeup of the committee, functions of the committee, and its staff support.

EPA 's public participation regulations (mentioned earlier) contain the following guidelines for the formation of a CAC:

- The CAC membership should be comprised of substantially equal representation from four interests: private citizens; public interest groups; governmental officials; and economic interests.
- Notice of intent to form an advisory committee should be circulated widely in the community so that those wishing to serve on such a committee may have an opportunity to do so.
- The tasks of the CAC should be clearly defined, including its role relative to other public participation mechanisms. In this way, the CAC can maintain its contacts and credibility outside the CAC;
- The CAC work should be supported by adequate staff and budget.
- Certain expenses of the CAC will be reimbursable.

Although EPA regulations may at first appear to set a pretty rigid structure for advisory committees, these committees may be expected to vary considerably. A number of questions will have to be carefully resolved within the community as the advisory committee is being formulated.

- membership (what economic interests are represented? What types of local government officials, public interest representatives?)
- size (will the advisory committee have 10 members or 30 members?)
- role and responsibilities (will the advisory committee have some responsibility for the execution of the public involvement program? To what degree will the advisory committee periodically expand its membership through ad hoc task forces?)

The CAC should be appointed in the early stages of the planning process. It will establish a necessary communication link between the consulting engineer and the public; provide a valuable forum for reconciling varying viewpoints; analyze, review and make recommendations; and reflect community values and goals during the planning stages. The CAC may also assist in the development of a public participation workplan, advise on politics, and participate in public meetings, workshops, and seminars.

It is important that the committee's role be established early in the planning-process. To be fully effective, the committee must have direct input into all major decisions affecting the plan. Their value will be greatly reduced if they become only a reactive panel. All CAC activities should be funded in the Step 1 grant, and adequate staffing should be provided.

Public Meetings

Public meetings afford an opportunity to introduce and stimulate interest in the wastewater treatment planning. They also afford the chance to clarify issues and give concerned citizens a forum in which to present their questions and air varying points of view.

Meetings should be scheduled throughout the planning process to provide information as well as receive citizen's opinions. They provide a valuable opportunity to explore the environmental, social, economic, legal, and political ramifications of various alternatives considered during the planning stages.

The new public participation regulations require public meetings at specific stages in the facilities planning proces. These meetings can take a variety of forms, for example:

- meetings designed to accomplish a task;
- meetings designed to identify and negotiate conflicts;
- open forums simply intended to air a variety of viewpoints; and
- large mass meetings to present basic information.

Public meetings also may be sponsored in different institutional frameworks. For example:

- the advisory committee in a full-scale public participation program may hold a working public meeting designed to broaden input from other publics on specific issues;
- the grantee may hire the local chapter of the League of Women Voters to sponsor an open forum on specific issues;

- an already scheduled town meeting may focus its attention on facilities planning issues needing resolution.

CAC's should normally play a role in formal public meetings so that they can receive input from the public and affectively advocate legitimate public interest.

Charettes

One of the more sophisticated and creative consultative mechanisms, charette is an intensive brainstorming session in which a number of people representing different interests get together to define problems and come up with solutions. It may last anywhere from a couple of hours to a few days, and participants are given no food or sleep. In its description, citizen Participation Techniques, the Institute for Participatory Planning (Laramie, Wyoming) list the following characteristics of a successful charette:

- Problems can serve as a catalyst problem to focus peoples' attention and facilitate discussion;

- There should be large and small meeting rooms if more than a few people are involved. Most of the work will be done in small groups;

- all kinds of materials should to be available, particularly roles of paper and magic markers;

- all food should be brought in. Some breaks for "cat naps" should be made available;

- consulting engineers, environmental specialists and other technicians should be sprinkled among the lay people to facilitate meaningful discussion.

Training Mechanisms

Three of the most common training mechanisms are:

Seminars

Seminars as described here are essentially training exercises designed to assist a small group in the legal requirements for and the steps in the process of wastewater facility planning. They may be repeated several times with different audiences and may be planned by concerned citizens, by local government or by the consulting engineering firm. The purpose of the seminar is to convey necessary information early in the planning stages, so that citizens who will continue to be involved will be knowledgeable about the issues and able to participate more effectively. Seminars or training sessions should be held by the local government grantee or the consultant for advisory committee members, the public participation specialist or coordinator, task forces, local government staff, and others active in the planning process.

Conferences

Conferences involve the presentation of information to a medium to large audience in a manner that facilitates the group's understanding of issues that need resolution. Conferences may combine techniques common to public meetings, workshops and seminars. The key ingredient, however, is a formal learning experience that will assist audience participants in understanding the issues that must be resolved before decisions can be made.

Simulation and Games

One of the most sophisticated public involvement mechanisms is the simulation of actual planning situations as a technique for mediating conflict and for training citizen participants and planners with differing points of view.

A central goal of public participation programs under 201 is to create forums for the development of a consensus on the single best solution to the community's wastewater problem. Creating a consensus for whatever solution emerges from the planning process requires a highly complex interplay of political forces. Sometimes it is possible to stimulate these interactions in a less-charged atmosphere by developing a "let's pretend" situation which has been highly simplified to permit acting out the interplay of forces.

The simulation will often require the hiring of a specialist to develop the game and conduct the activities.

Building a Coalition

One of the most effective ways citizen organizations can utilize the mechanisms described above is to build a broad-based coalition within their community to affect the facilities planning decision-making process. An organization's various efforts to affect the decision-making process will be viewed more favorably by the general public and by the local government grantee if it is evident that a broad-base of community support is involved.

Whether you decide to hold a workshop or seminar or to establish a task force, you will wish to consider expanding the number of organizations and individuals involved in such an activity. Building such a coalition will involve informal meetings with a number of different interests in order to establish common points of concern.

Building a coalition may not mean that all organizations agree with all or even most of the possible positions vis-a-vis the facilities planning process. It may simply mean that the organizations forming the coalition agree to disagree on certain issues, have identified certain issues they have in common, and share the objective to regularly communicate with the decision-making body.

Public Hearings

Although a public hearing is a consultative mechanism, its formality and legal requirements have caused us to list it as a separate type of mechanism.

A whole list of legal requirements must be met in conducting almost any public hearing under the Clean Water Act. These requirements are described earlier in this chapter. Anyone involved in either designing or participating in a public involvement program will wish to be cognizant of those requirements.

Public hearings are normally a reactive mechanism and are meant to give individuals and organizations a formal opportunity to express their opinions on an issue immediately prior to decision making. Although in theory most public hearings are scheduled just before decision making, in reality they usually take place after the staff has completed its work and has arrived at a tentative conclusion. All too often the burden is on the public to prove that a different conclusion is warranted.

Public hearings have been criticized not only because of the heavy burden of proof on the public to change an agency course, but also because the manner in which they are handled often discourages rather than encourages citizen input. Many of the legal requirements (such as notice periods, requirements for Fact Sheets, etc.) described earlier were designed to respond to these criticisms.

Officials responsible for public hearings may wish to consider holding one earlier in the decision making process than is required by regulation. (This would mean a second public hearing, as you would not be relieved of the existing public hearing required before adoption of a Facility Plan.). This approach would give officials the opportunity to better consider and respond to public input before finalizing recommendations.

Creative Use of Existing Institutions In Implementing Public Involvement Tools

In addition to the tools for public involvement in the facilities planning process discussed in preceding sections, there will be a number of opportunities for affecting Facility Plans outside the formal planning process. We cannot hope to describe the range of opportunities available because they will vary enormously depending upon the institutional structure of your community and you community's relationship to other state and regional governments.

In constructing a public participation program, you should examine the various governmental and nongovernmental tools for decision making that exist in your community and tailor your program to make maximum use of these tools.

Town Meetings

New England towns and villages annually hold town meetings in the spring to approve the yearly budget and specific actions or programs to be undertaken by the Town Council or Board of Selectmen. The local financing share for facilities planning, engineering design, and construction must be approved by community members at the town meetings. User charges and local bond issues might also be considered at such a time.

For example, in a town meeting citizens might attach a rider to the budget allocation for the local financing share requiring a public participation work plan as part of the Step 1 grant application. During a town meeting a sewer commission might be directed to consider land treatment or other low-technology systems in developing their Plan of Study, or limitations might be placed on the selection of the location for a treatment facility.

Citizens who wish to be involved in facilities planning will wish to participate in all town meetings in which facilities planning is on the agenda. In addition, if facilities planning is not on the agenda, local decision makers might be responsive to requests that it be added. A New England town meeting may offer a unique opportunity to reach a broader constituency in the community than is possible at other times.

Conservation Commissions

Conservation Commissions, like town meetings, are unique to the northeast and may significantly influence 201 planning. Commissioners have the authority to review Facility Plan proposals and environmental impact statements (if an EIS is prepared) and to assess the natural resource implications of the proposed project. They will probably also have a wealth of data available to assist citizens in making their own determinations regarding the environmental impact of a proposed treatment facility

Planning Boards and Commissions

Many communities will have some type of planning and/or zoning board or commission to develop and/or approve economic development plans, land-use plans, or individual requests for zoning. These agencies will be involved in reviewing Facility Plans to determine whether the treatment plant and interceptor sewer capacity and location are consistent with local plans.

Planning boards and commissions frequently have regular meetings which are open to citizens. In such meetings, citizens may raise questions about the implications of certain aspects of the facilities planning process.

Such boards and commissions may not have much power or authority in a community. Concerned citizens however, can exert considerable influence to insure better coordination between the Planning Commission and those planning for sewage treatment, thus making Facilities Planning more responsive to broader planning concerns.

Regional Planning Agencies

Most areas of the country now have regional planning agencies of some kind. These agencies usually have the responsibility for conducting an initial review (known as A-95 Review) of Facility Plans to assure consistency with other local and regional plans and to assess environmental impacts. The A-95 Review Process provides regional planning agencies with the opportunity to review and comment on upcoming projects, but the recommendations generally are not legally binding. The 201 Plan of Study and grant application, as well as the Facility Plan and Step 2 and Step 3 grant applications, must be reviewed and commented on by the regional planning agency prior to submission to EPA. The agency, when submitting its A-95 review, may simply approve or disapprove a particular project or may qualify its approval based on specific project changes. If an inconsistency with local plans exists or if special environmental problems are known, this should be brought to the attention of the agency when the grant application is being reviewed.

Certain planning agencies may exercise additional authority. The California Tahoe Regional Planning Agency, for instance, has permitting authority under the California Environmental Quality Act. Facility Plans are reviewed for compliance with land-use plans, consistency with population projections, and analysis of secondary environmental impacts before a permit may be issued. Projects which plan for an excess capacity or which may degrade air or water quality may not be approved.

Frequently an existing regional planning agency is in fact the agency responsible for conducting 208 planning. Since Facility Plans must be consistent with 208 plans, these agencies may have real influence over what happens during the facilities planning process. Early in your involvement in the facilities planning process, you will wish to examine how decision making may be constrained by an approved 208 plan. If you feel that significant decisions have been made without public involvement, or that certain decisions may have environmental and/or social consequences not adequately considered, you may wish to find out what provisions have been made for amending the 208 plan through the formal continuous planning process.

In many instances, there will be a number of public participation mechanisms already in use by a regional planning agency. Using these existing mechanisms may be an efficient way to approach development of a public participation program for the facilities planning process. For example, a regional planning agency responsible for 208 planning may already have a citizens' advisory committee. Perhaps the CAC for the facilities planning process should be a subcommittee of that citizens advisory committee, including membership from the larger 208 CAC.

The regional planning agency with responsibility for 208 planning may have staff members experienced in public participation. Since 208 planning and facilities planning are so closely linked, arrangements may effectively be made to allow the facilities planning process to make use of these already experienced public participation specialists.

A number of other regional public participation mechanisms, such as regular newsletters or other bulletins, and regularly scheduled public meetings, may also provide useful opportunities for public involvement in the facilities planning process.

Cable Television

In a number of communities around the country, local cable TV stations have sponsored regular public-service programs produced in the community and dealing with issues of special local interest and concern. Local groups could develop programs focusing on the facilities planning process and, for instance, discuss the water-quality problems being addressed by the facilities planning process and present controversial issues.

Several communities are experimenting with the use of a two-way capability that will allow cable TV viewers to transmit back to local stations, offering a feed-back opportunity not normally associated with television. In facilities planning areas with a scattered rural population, this two-way capability may significantly add to the usefulness of a public meeting if it is transmitted on TV.

The two-way capability of cable TV is still in the experimental stage, and may not be widely available to you.

Locally originated public service programming, however, is not at all experimental, and may be a useful mechanism to foster broader public involvement in facilities planning.

What Problems Might Be Encountered in the Implementation of Public Participation Requirements?

A historical perspective

The development of the public participation regulations described in this chapter was begun by EPA in October 1977 at the request of five national environmental organizations--The Conservation Foundation, National Wildlife Federation, Natural Resources Defense Council, Sierra Club and Institute for Public Interest Representation (Georgetown University Law Center). In a June 21, 1977 memorandum to EPA Administrator Douglas Costle, these organizations stated:

> Despite both the emphatic language of 101(e) and the apparent recognition by EPA of the significance of public participation, EPA has yet to issue regulations that fulfill the promising and exacting public participation requirements of the [Clean Water] Act.

Agreeing that the public participation efforts of EPA and of implementing agencies at the state and local level had been deficient, Thomas Jorling, Assistant Administrator for the Office of Water and Hazardous Materials, began the effort to rewrite the rules for public involvement.

Between 1972 and the end of 1978, the public participation requirements were initiated primarily by a few forward-looking administrators with appropriate implementation authority. The rules of the game were vague indeed. Regulations issued on August 23, 1973, (40 CFR, Part 105) were in fact performance standards that set limited goals and objectives to be met by a public involvement program but virtually no requirements. (For example, implementing agencies were to develop an information program, a program of early consultation with various publics, etc.). Program regulations--which were to provide specific requirements--usually referred back to Part 105 and failed to specify any other public participation requirements other than an occasional public hearing.

Even the few requirements that did exist (i.e., a public participation summary that would allow an approving agency to make a judgment concerning the adequacy of public involvement) were virtually ignored. EPA never issued criteria for judging the adequacy of public involvement programs.

In fact, even the eligibility of public participation programs for construction grants funding has been the subject of some confusion. With no clear-cut regulatory directive declaring public involvement to be grant-eligible, some EPA regions and states determined that some public participation activities were not grant eligible.

The new Part 25 regulations (replacing Part 105) are surprisingly similar in approach to the old regulations. They consist mostly of performance standards and leave to the implementing agency or to the specific program regulations the mechanisms and timing of the public involvement program. There are, however, significant differences:

1. New Part 25 pays a great deal of attention to criteria for judging the adequacy of public involvement. The goals and objectives of public participation are clearly stated.

2. Although specific public involvement techniques are not required by Part 25, when they are required in program regulations they must be carried out in a specific manner. For example, public meetings must take place on 30-day notice, advisory committee membership must be equally balanced among private citizens, public interest groups, government officials and economic interests, etc.

3. The reasonable costs of public participation activities are clearly stated to be grant-eligible items.

4. All grant programs must outline an adequate public participation work element (in the case of the Construction Grants Program, the Plan of Study outline fills this requirement) before receiving the grant award.

5. Responsiveness summaries required periodically throughout the facilities planning process will assist EPA oversight responsibilities regarding the adequacy of the public participation effort.

6. The EPA has obligated itself to provide technical assistance and training to advisory committees formed to participate in the facilities planning process.

7. Simply by revising the regulations, EPA has signaled a change. The agency has effectively said --to the public and to implementing institutions--that public participation efforts under old regulations were not successful, and that public participation programs will be taken far more seriously in the future.

Institutional resistance

It is perhaps for this last reason that proposed public participation regulations--which took such modest steps toward changing the rules--evoked such controversy at all levels of government. Some EPA Regional Offices, and many state agencies and local governments submitted comments on the proposed regulations that decried any specific requirements for the development of a public participation program.

Some of their objections were:

- the limited financial and staff resources available to oversee and/or implement the regulations;
- the large number of federal regulations that local and state governments already have to deal with in the Construction Grants Program; and
- a feeling that the specific requirements of the regulations would be insensitive to local institutions, problems and opportunities.

Other reasons for institutional resistance to public involvement in facilities planning may be:

- a lack of understanding on the part of the engineers who have run the program that there are political and social value judgments involved in the technical decisions that lead to the selection of a waste treatment management alternative;
- a lack of understanding of how to interpret public participation regulations on the part of those charged with interpreting them. Encouraging effective public involvement is a specialized skill in the same way that engineering a treatment facility is a specialized skill. At this point the people who are charged with implementing public involvement programs are largely the same people who are engineering the facilities. The development of creative and meaningful public involvement programs will probably require hiring public participation specialists.

The development of a meaningful public involvement program in your community may well require perseverance on the part of informed citizens. You will want to work closely with the local government grantee and with the consulting engineer to ensure that public involvement programs:

- closely track the decision-making process to ensure maximum input without causing substantial delays;

- identify important community issues at early stages in the decision-making process; and

- target the important affected and interested publics in your community.

Local apathy

A final problem you might incur in developing a public involvement program is lack of interest among the various publics in your community. This apathy may be caused by one of three conditions:

- lack of understanding of how the facilities planning process touches the lives of the people in the community;

- the proposed project may be only one of a number of important issues currently drawing on the volunteer time of people in the communty; and

- the proposed project may have truly minimum impact on the community.

It is important to remember that different projects and activities generate different levels of interest in the community. In some cases, no matter what your efforts, there is no way you will be able to turn out 300 people for a public meeting on a minor sewer rehabilitation project, for example.

In many cases, however, you will be able to actively encourage public involvement by pointing out to various groups how their interests coincide with or are affected by the facilities planning process (see "Who is the Public?" in this chapter).

What Are the Rewards of Public Involvement in the Facilities Planning Process?

It is important to remember that the ultimate purpose of public involvement in facilities planning is cleaner water at a lower environmental, economic and social cost. Only careful public scrutiny can ensure:

- that the Facilities Plan meets the present and future needs of the community;

- that all the relevant environmental, economic and political data necesary to ensure effective implementation emerges;

- that appropriate measures are taken to mitigate negative impacts; and

- that a community develops a committment to continued oversight of the operation and maintenance of the facility.

REFERENCES

A number of sources contain further descriptions of public participation tools. Three sources have been particularly useful in the preparation of this book:

1. A Manual for Communities on Public Participation in Planning for Wastewater Treatment, Draft Publication, EPA Region I, 1977.

2. Institute for Participatory Planning, Citizen Participation Handbook for Public Officials and Other Professionals Serving the Public, Chapter V, "Citizen Participation Techniques," Third Edition, 1978, Box 4068, Laramie, Wyoming.

3. Warner, Katherine, Public Participation in Water Resources Planning, University of Michigan, Ann Arbor, Michigan, July 1977.

APPENDIX A

Principal Federal Regulations and Guidelines

Construction Grants Program

Regulation	Purpose
Municipal Wastewater Treatment Works, 40 CFR Part 35, Supart E [Grants for construction of Treatment Works, 43 Fed. Reg. 44022-44099, Sept. 27, 1978.] Public participation in the Construction Grants Program [Cleared by the Agency, but not yet published as we go to print. When published, these regulations will amend Part 35. These requirements should be promulgated in late January or early February, 1979.]	Comprehensive regulations for construction grants program. Describes conditions that must be met prior to award of federal funds; minimum content of facilities plan, requirements for cost-effectiveness and analysis, funding innovative and alternative system and individual systems, state priority lists and set-aside funds, requirements for architectural and engineering subagreements, and the specific public participation requirements applicable to the Construction Grants Program.
State and Local Assistance 35 CFR Subpart F. State Management Assistance Grants [43 Fed. Reg. 42251, Sept. 20, 1978.]	Implements Section 205(g), providing funds to states for management of Construction Grants Program.
Secondary Treatment Information, 40 CFR Part 133, [38 Fed. Reg. 22298, Aug. 17, 1973, Amended on Oct. 7, 1977.]	Defines effluent limitations for the minimum national requirement of secondary treatment.
Water Quality Management, 40 CFR, Subpart G [proposed on Sept. 12, 1978, 43 Fed. Reg., 40742-40757. Not yet promulgated in final as this book goes to print.]	Defines contents of State/EPA Agreement regarding water quality management requirements of Sections 106, 208, 303 and 201(g).
Preparation of Environmental Impact Statements, 50 CFR Part 6, [40 Fed. Reg. 16811-6827, Apr. 14, 1975.]	When and how to prepare an Environmental Impact Statement for waste treatment facilities.

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Public Participation in Water Pollution Control, 40 CFR Part 25. [These regulations have not yet been promulgated in the Federal Register.]	Describes general requirements for pubic participation for all EPA water programs. Reg.

EPA also publishes guidelines, which are not compiled in any official way and do not have the force of law. They give advice on desirable procedures and efficient methods and criteria. Four of these documents have important impacts on the Construction Grants Program:

Guidelines	Purpose
Guidance for Preparing a Facility Plan Revised, May 1975, Municipal Construction Division, Office of Water Programs, EPA, Washington, D.C. 20460	Suggested topics, outline and data necessary for a facility plan. Now being revised.
Model Facility Plan for a Small Community, Sept. 1975.	
Guidelines for State and Areawide Water Quality Management Program Development, Nov. 1976.	Details on the contents of a 208 plan. Now being revised.
Alternative Waste Management Techniques for Best Practicable Waste treatment, MCD-13, Oct. 1975.	Defines the acceptable options for achieving BPWTT.

Many other guidelines cover technical aspects of the waste treatment program and contain valuable information on alternative waste treatment management systems. They are all available from your EPA Regional Office.

APPENDIX B

Table 2

FACILITY PLANNING
PUBLIC PARTICIPATION PLANNING GUIDE

Decision Points	Public Participation Requirements *	Issues to be Resolved	Recommended Public Participation	Discussion
1. State delineation of facility planning areas.	Only as incorporated statewide water quality management planning public participation requirements. No action specifically required here.	a) Are boundaries sufificent to assess potential environmental impacts? b) Do they allow for maximum treatment options? c) What are the political and institutional implications?	a) Fact sheets stating criteria for boundary determination. b) Public notification through media, press and direct mail to citizens and agencies known to be interested. c) Public meeting if controversy is known to exist.	Planning boundaries will be determined by completed 208 plan or state water pollution control agency. They must include source of pollution and an area large enough to analyze environmental impacts of treatment options.
2. Criteria for state priority list.	a) Factsheet b) Public hearing (with 30 days' notice) c) Responsiveness summary submitted to EPA.	a) Do criteria relate to national and state water pollution goals? b) Are major pollution problems given priority? c) Are rural pollution problems being addressed? d) How are priorities established within "set asides." e) Are innovative and alternative systems given given high priority?	a) Active solicitation of public review and comment through direct mail. b) Several public meetings held before hearing. c) Circulation of Responsiveness Summary to hearing d) Summary of agency response to citizen input.	The 1977 Clean Water Amendments require states to develop new criteria. Citizens should ask their states to put them on the required mailing list that will ensure their receipt of factsheets describing changes in priority ranking and rating systems.

* The public participation regulations on which this table is based are in the process of final approval at EPA before promulgation. These regulations are likely to be published in the Federal Register sometime in February. (See text for additional citation.)

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	Decision Points	Public Participation Requirements	Issues to be Resoloved	Recommended Public Participation	Discussion
3.	State priority list.	a) Circulate statewide information about priority list (or any major revision thereto). b) 30-day advance notice before public hearing	a) Does list relate to established criteria? b) Are innovative solutions fully funded?	a) Fact sheets which indicate the nature of pollution problem and the scope of the proposed project. b) Direct mailings to groups and individuals known to be interested. c) Public notification of hearing thru press, media and mailings. d) Summary of agency responsiveness.	States are only required to give 30 days notice of hearing. Standard practice is to provide notification with project name, number and amount only. Citizens should pressure states to provide sufficent information to make hearings and comments meaningful.
4.	Preapplication Conference.	None.	a) Responsibilities of state and local governments. b) Time schedule. c) Explanation of process and requirements.	a) Establish a Citizens' Advisory Committee.	This conference takes place between EPA, state and grantee (local official), and consulting engineer, if hired. Funding application will commence after this conference.
5.	Selection of engineer.	None.	a) Does engineer have experience with innovative treatment systems? b) Has he included public participation in previously completed 201 projects? c) Does he have staff capability to undertake all phases of 201 planning?	a) If CAC is established, Advisory Committee interview with engineer candidates; or, if no CAC yet, establish an Engineer Selection Committee b) Distribute information about candidates and their previous experience.	The selection of a consulting engineer is a critical decision. It may determine the alternatives selected for study, the extent of the environmental assessment, and whether any public participation takes place. Some engineers may have experience with only one or two systems and be reluctant to consider others. Others will consider public input a nuisance rather than a help. EPA regulations encourage the grantee to consult with the public at this point.

Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
6. Plan of Study. (POS)	Notify and consult with public. Develop brief outline of public participation program.	a) Nature and scope of 201 plan. b) Schedule for completion of tasks. c) Itemized costs. d) Plan for public participation including staff, preliminary budget and schedule.	a) CAC, if established should review POS and make recommendations for public participation. b) Notify groups and individuals known to be interested. c) Responsiveness summary	The POS is not currently funded, so officials may be reluctant to establish any formal mechanism, but an effort should be made to see that at the very least some informal public input occurs, and that public participation activities are scheduled with sufficient funding. A responsiveness summary although not required may be useful at this point.
7. A-95 Review of POS	Clearinghouse comments	a) Consistency with existing regional and local plans. b) Is public participation adequately provided for?	a) Citizen should be invited to appear before A-95 committee to make recommendations if POS inadequate and/or write letter to clearinghouse for consideration prior to meeting date. b) Comments and recommendations of public forwarded to the EPA regional office. c) Citizens should contact the press regarding any request coverage of the issues.	The A-95 review is usual conducted by COG or Regional Planning Council. The POS may be considered by a sub-committee with geographic representation or only by a policy committee. The meetings are open to the public and usually time is provided for citizen comment if requested.
8. State review of POS.	Review adequacy of public participation outline in P.O.S.	a) Adequacy of planning area. b) Proper scope of tasks. c) Reasonable cost estimates.	a) Citizens should notify state agency of inadequacies in plan by letter or appointment if possible. b) Request a response indicating how your recommendations have been considered.	It is always best to meet personally with state and local officials if possible. Take along someone with technical expertise if your discussion will include topics of a technical nature.

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
8.	State review of POS cont'd.		d) Is the public participation work element in the plan adequate to ensure that public involvement policies and objecare met?	c) Ask that known interest groups, individuals and the press be notified of their decision and its basis.	Use the media to publicize the controversy only after you have determined differences cannot be resolved thru discussions and negotiations.
9.	EPA review of POS (May principally be State Review in the case of of a delegated program)	a) Review adequacy of public participation work element in POS	a) Compliance with application requirements, 208 and basin plans and priority list.	a) Make known any objections to POS to EPA project officer.	If the POS has not been available for review, recommendations to each agency should always include information regarding issues, desirable public participation activities, alternative system, etc.
		b) Determine whether public participation program should be Basic or Full Scale.	b) Is public participation adequately provided for?	b) Include information regarding any special pollution, land use, growth or social or economic problems which have not been included in POS.	
		c) How will the Facilities Planning Process be coordinated with 208 planning?			
10.	Award of Step I grant.	a) Hire public participation coordinator*	a) Did agency respond to issues received?	a) Contact consulting engineer to discuss scheduled planning.	Under current EPA requirements, any public participation work plan and funding allocation if it is to be considered must be a part of the POS. Proposed regulations would allow the grantee up to 45 days after the grant award to develop the plan. Even without the proposed regulations, if funding for a public participation program is inadequate or absent a grant amendment may be sought.
		b) Grantee informs public of opportunities to serve on Citizens Advisory Committee (CAC)*	b) Will a comprehensive public participation be implemented? Will a grant amendment be necessary to ensure an adequate public participation program?	b) Request that CAC be established if not done to date.	
		c) Establish CAC*		c) Discuss public participation program, how it will operate, staffing and budget, public participation specialist.	

* Required only in the Full-Scale Public Participation Program

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
10.	Award of Step I grant. cont'd.	d) Develop mailing list of interested and affected individuals. e) Establish staff contact for CAC (May be public participation coordinator) f) Within 45 days after award of Step I grant submit Public Paricicipation Work Plan (PPWP) to EPA g) Distribute to mailing list: 1) copy of PPWP 2) fact sheet on project h) Develop and Institute a public information program i) Establish informaation depository j) Train CAC members*	c) Have the appropriate issues for public involvement been identified? d) What kinds of information will facilitate public involvement?		
11.	Infiltration/ inflow Analysis	None	a) What parts of the system need rehabilitation because of groundwater leakage? b) Might rehabilitation take the place of new sewage treatment capacity?	a) CAC review and comment. b) Keep public aware of progress and results with regulat mailings of newsletters and informational materials.	This step only applies to projects with existint sewers.

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* Required only in the Full-Scale Public Participation Program

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
12.	Assess current situation.	a) Consult with public after 30 days notice b) Hold a public meeting* c) Prepare and distribute Responsiveness Summary (these requirements must take place no later than Decision #15)	a) To what degree will measures such as sewer system rehabilitation --water conservation and flow reduction programs--and better O&M of existing facilities obviate the need for new treatment plant capacity? b) Have current water quality problems, environmental conditions, population and land use data been properly assessed? c) Are there existing measurements on current wastewater flows? Are the sources of these flows known?	a) A public participation specialist should be hired to carry out public participation work plans. b) CAC should review and comment on assessment or individual consultations sought. c) Extensive mailing list of interested individuals and groups should be prepared by an engineer. d) Citizens task forces might be formed at a public meeting to assist in assessing 1) current and future situations 2) sensitive environmental and social concerns.	When a CAC is not established for development of the Facility Plan, other consultation methods should be pursued at each decision point, indicating CAC review or action.
13.	Environmental Assessment	(See #12)	a) Have all environmentally sensitive area within planning boundaries been adequately considered?	See recommended participation in steps 12, 13, 14, 15 and 16.	The Environmental assessment is an analysis of the current environmental situation and any changes likely to take place as a result of each of the major alternatives under consideration. It starts during the assessment of current situation, generally is conducted by

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* Required only in the Full-Scale public participation program

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
13.	Environmental Assessment cont'd.		b) Have the primary and secondary environmental impacts of all the major alternatives been adequately considered? c) Will a full scale environmental impact statement be necessary?		the consultant, and continues right up until the time of consultant recommendation. If the decision is made to expand the analysis to a full environmental impact statement, the information gathered in the assessment will be the basis for the EIS.
14.	Decision to "Piggy-back" an Environmental Impact Statement (EIS)	(See #12)	a) To what degree is there sufficient knowledge of environmental quality problems to decide to do the EIS concurrently with the environmental assessment?		If the environmental impacts are known to be significant early in the planning process, the EIS may be prepared in conjunction with the preparation of the plan. This is called "piggy-backing." If this occurs, a more extensive public participation program should be undertaken which focuses on the environmental impacts.
15.	Assess future situation.	(See #12) a) Mid-Project* Evaluation by EPA (or State) of compliance with public participation requirements.	a) Are land-use projections consistent with local planning and/or other community goals? Do existing land-use plans call for intrusion into environmentally sensitive areas such as floodplains or wetlands?	a) CAC reviews and makes recommendations. b) Workshop or public meetings to discuss issues. c) Fact sheets should be prepared and disseminated.	If a public participation specialist is not hired or the public participation elements contracted to a qualified firm or organization, it will be necessary for interested community groups to continually pressure for the opportunity for public input, particularly when major issues or controversies are involved.

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* Not required at this time necessarily, but at a "mid project" point.

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
15.	Assess future situation cont'd.		b) Are population projections consistent with BEA* projections or with significant new growth being planned for?	d) Interest newspaper in doing feature article.	
			c) Are planned future industrial flows adequately documented? Are they consistent with community plans?		
16.	Cost Effectiveness analysis	a) After 30 days notice, public meeting	a) Is the planning period reasonable?	a) CAC review of important decision points and recommendations on same.	Public scrutiny of alternatives prior to the engineers' preliminary selection of an alternative is very important. The cost effectiveness analysis weighs both monetary and nonmonetary factors in the various alternatives. Concerned citizens will wish to be involved in the value judgment implicit in that weighing process before decisions are made. If the alternatives can be agreed upon before the public hearing, the plan is more likely to be completed on time at the least expense.
		b) Responsiveness summary	b) Are the maximum number of alternatives being considered?	b) Public meetings and workshops, including CAC grantee and consultant participation.	
			c) To what degree are flow and waste level forecasts accurate? Does the facilities plan contemplate an aggressive Flow Reduction program?	c) Fact sheet and other information disseminated.	
			d) Has appropriate attention been paid to the phasing or staging of treatment works in order to provide for cost-effective treatment in a manner that helps control and manage growth.	d) On large projects public may need to be reached through neighborhood meetings, telephone committees.	

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* BEA - Bureau of Economic Affairs

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
16.	Cost Effectiveness analysis cont'd.		e) Which alternative has the least monetary cost and environmental cost and is most compatible with community goals? Will overriding environmental and social costs point to the selection of a particular alternative, even if that alternative has the higher monetary costs?	e) Encourage the use of speakers bureau, multimedia presentations, community options display at organizational meetings. f) Request that special task forces be set up if major issues need more concentrated scrutiny.	
			f) Are all the social and environmental costs considered in the cost effectiveness analysis?		
17.	Sewer System Evaluation Survey Survey	None.	a) What are the needed corrective actions for sewer system rehabilitation, and what will be the specified cost?	a) Brief CAC on progress of evaluation.	This Evaluation is largely on the engineering study that will be conducted by the consultant. It may, nonetheless, involve substantial cost to the community, and the public should be kept apprised of results.
			b) What parts of the system need rehabilitation because of groundwater and stormwater leakage?	b) Keep public aware of progress through mailings of newsletters and informational material.	This step only applies to projects with existing sewers.
			c) Might rehabilitation take the place of new sewage treatment capacity?		
18.	Historical and Archeological investigations.	None.	a) Are historic or archeological sites affected by the alternatives chosen?	a) Submit recommendations if sites are known in the area. b) CAC review and comment, if any sites determined to be in planning area.	These comments would best be presented before or at public hearing, if possible.

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
19.	Selection of Alternative	a) 30 days notice before public hearing. b) **Final responsiveness summary with evaluation by grantee of effectiveness of public participation program.**	a) Is the selected alternative the most cost-effective alternative to meet community needs? b) To what degree have the environmental social and economic impacts of the recommended alternatives been mitigated?	a) Request question/answer period before public hearing opens. b) Considering scheduling public hearing in evening or on weekend to ensure adequate public attendance. c) Request distribution of Responsiveness summary to all who attend hearing. d) Evaluation by Advisory Committee of Effectiveness of public participation program.	If there has been meaningful public involvement throughout the Facilities Planning process (including agency responsiveness to public concerns, much of the hearing testimony may focus on mitigating unavoidable impacts. In fact, if a comprehensive and well thought out public involvement program has taken place, the public hearing may surface no new issues, and may not be well attended.
20.	A-95 review of Facility Plan	Clearinghouse comment.	a) Is plan in accord with all areawide plans? b) Will the alternative selected eliminate the problem?	a) Request to be heard during review if plan is felt to be inadequate or public input has not been adequately considered.	The clearinghouse cannot approve or disapprove a plan, but rather gives favorable or unfavorable comments which are then considered by EPA. The comments can have a significant impact on whether a plan is approved, however.
21.	State review of Facility Plan.	(See #22 below)	a) Does plan comply with basin and 208 planning?	a) Present comments to state agency if in disagreement with selection of alternative. b) Ask state to notify public of certification or refusal of plan and the basis for its action.	

	Discussion Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
22.	EPA review of Facility Plan (May be principally state review in case of delegated program)	a) Evaluation of adequacy of public participation program. b) If public participation found inadequate recommended remedial actions.	a) Is the alternative cost effective? b) Have all requirements been met? c) Has adequate public participation occurred? d) Should an environmental impact statement be prepared?	a) Make known any comments or views not expressed in foreworded Facility Plan. b) Request agency notification of determination of plan.	If you are dissatisfied with any part of the Facilities Planning Process, this may be your last realistic opportunity for appeal. If substantial parts of the Facilities Planning Process have been delegated to a state agency, that agency will be your first avenue of appeal.
23.	Environmental Impact Statement	Public hearing.	a) Have all possible alternatives including "no action" received adequate consideration? b) Have environmental impacts of all options been adequately assessed? c) Can negative impacts of recommended alternatives be mitigated?	a) CAC involvement in weighing environmental factors and determining alternatives. b) Widespread dissemination of information. c) Workshop and meetings to discuss impacts, alternatives. d) Solicit widespread participation in hearings.	No Facility Plan may proceed until environmental issues have been satisfactorily resolved when an EIS is prepared by EPA.
24.	EPA Award of Step 2 grant.	a) Consultation with public regarding necessity of additional public participation. b) Public participation workplan if additional PP deemed necessary c) Inform public of financial impact of user charge system.	(Award contingent on Step 1 approval.) a) User charge system b) Industrial cost recovery (ICR) system.	a) CAC should continue to function as needed throughout Step 2. b) They should especially be involved in determining a user charge c) Information should be disseminated and a public hearing should be held if the costs are high or controversy arises.	An equitable user charge system must be included in the planning. In addition, industrial users must pay their share of construction costs directly attributable to control of their pollutant discharge. A proposal for these charge systems must accompany the Step 2 application. Detailed engineering plans and specifications will be developed during this stage.

	Decision Points	Public Participation Requirements	Issues to be Resolved	Recommended Public Participation	Discussion
24.	EPA Award of Step 2 grant cont'd.	d) Consult with public prior to adoption of user charge and Industrial cost Recovery system.			
25.	Step 3 grant award.	None.	a) Any primary impacts of construction such as noise, soil erosion, air pollution, runoff.	a) CAC should continue to function as needed. b) Periodic information on progress, user charge/ICR ordinances, or implementation should be disseminated.	The construction phase may create controversy because of primary impacts on adjacent property or because some members of the public may not be aware of the project until construction starts. Implementation of user charge and ICR must be completed by the time 80% of construction is completed.

Table 3

MODEL

PLAN OF STUDY OUTLINE

BASIC PROGRAM (town of 10,000)

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
Grant Award				
Select Engineer	- Public notice	wk. 1	Grantee	
	- Identify public liaison on grantee/consultant staff[2]	wk. 2	Grantee and/or consultant	
Information Program	- Public notice to media and mailing list of depository and materials available			
	- Identify key interests and develop project mailing list[2]			
	- Deposit key documents in town library[2]	wks. 6-7		
Public Participation workplan	- Develop detailed public participation workplan w/informal public input[3]	wks. 3-4	Consultant,	Key citizen leaders who express interest in participating
	- Develop and distribute public participartion workplan and first factsheet which identifies engineer and describes project[1]	wk. 5	Public liaison on grantee or consultant staff	Mailing List
Development of Plan Assessment of present and future situation	- Interview 208 PAC members[3]	mos. 2-6	Consultant	208 PAC members
	- Interview key local officials and citizens[3]		Consultant	Public health officer, town engineer, town planner, regional planners, conservation commission members, representative of local industry, chamber of commerce, etc.
	- Newspaper article in local paper			
	- Develop and distribute citizen survey[3]		Public liaison	Mailing list
	- Attend various local group meetings[3]		Consultant	PTA, JC's, Grange, LWV
	- Compile results of survey[3]		Public liaison	
	- Agency responsiveness summary[2]		Public liaison	Available to general public, prepared for EPA
Consideration of Alternatives	- Develop and distribute factsheets[3]	mos. 7-9	Public liaison	Mailing list
	- Notice of public meeting[2]		Public liaison	Mailing list
	- Public meeting[1]		Public liaison, consultant, grantee	General public
	- Prepare article for local newspaper [3]		Public liaison	General public
	- Agency responsiveness summary [2]		Public liaison	General public
Submission of Final Plan to town	- Distribute factsheet [3]	mo. 10	Public liaison	Mailing list
	- Notice of public hearing [2]		Public liaison	Mailing list
	- Public hearing [1]		Consultant, grantee	General public
	- Agency responsiveness summary [2]			
Town Approval State/EPA Review and EIS Decision	- Final responsiveness summary [1]	mo. 11		

Note: [1] Required by proposed Part 35
[2] Required by proposed Part 25
[3] Meets a performance standard of Parts 25 and/or 35

Table 4

MODEL

PUBLIC PARTICIPATION WORKPLAN
BASIC PROGRAM (town of 10,000)

DECISION POINT	TECHNIQUE	SCHEDULE		TARGET AUDIENCE
1. Step 1 grant award	Hire public liaison Develop mailing list Develop Public Participation Workplan Distribute PPWP and Fact Sheet	wks. 1-6	Public liaison	General public
2. Assessment of present and future situation	Interview 208 PAC and/or CAC members [3] - their views on areawide and local water quality problems and key issuss which should be addressed, population projections - their experience w/public participation key citizens who should be contacted	wks. 9-10	Consultant	Members of 208 PAC and CAC
	Interview key local officials and citizens [3] - identify major water quality problems/ issues - identify community goals and objectives	wks. 11-12	Consultant	Public health officer Town engineers, Planners Conservation Commission members Industrial dischargers Chamber of Commerce
	Publish article in local newspaper which: [3] - describes current situation and status of Facility Planning Process - summarizes attitude of town officials and key citizens on local water quality problems - highlights the importance of public input and describes scheduled public participation activities - identifies staff contacts	wk. 13	Public liaison	General public
	Develop and distribute citizen survey [3] Based on data collected during previous interviews, survey will seek to refine community goals, identify level of knowledge and preferences concerning water quality	wks. 13-14	Public liaison on consultant or grantee's staff	All registered voters
	Compile results of survey [3]	wks. 15-16	Public liaison	
	Attend various local group meetings[3] Get on the agenda of various civic groups' weekly/monthly meetings. Present overview of community water quality problems, answer questions, explain results of citizen survey, seek to further refine community goals and objectives	wks. 17-20	Consultant/public liaison	PTA, JC's, Grange, League of Women Voters. Sierra Club
	Prepare agency responsiveness summary [2] - summarizes results of citizen survey and other public consultation efforts. - outlines grantee's response to citizen input - placed on file at local libraries, Town Hall	wk. 22	Public liaison	EPA

Note: [1] Required by proposed Part 35
[2] Required by proposed Part 25
[3] Meets a performance standard of Parts 25 and/or 35

Table 4 cont'd.

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
3. Consideration of Alternatives	Develop factsheets which describe various alternatives being considered and outline the costs and environmental impacts of each [3]	wk. 26	Public liaison	Mailing list
	Distribute factsheets which also include notice of upcoming public meeting [2]	wk. 28	Public liaison	Mailing list
	Informal public meeting to discuss various alternatives, answer questions, identify options which may require further study [1]	wk. 32	Consultant, public liaison, grantee	General public
	Prepare local newspaper article which describes public meeting and decisions made [3]	wk. 33	Public liaison	General public
	Prepare agency responsiveness summary [2]	wk. 34	Public liaison	EPA
4. Submission of Final Plan to town	Distribute factsheet which highlights the major elements of the proposed plan and rationale for the selection [3]	wk. 40	Public liaison	Mailing list
	Notice of public hearing in local newspaper and sent to all on mailing list [2]	wk. 41	Public liaison	General public, mailing list
	Conduct public hearing to present final plan along with the draft EIS (if required) for their approval to community. Allow for additional citizen comments. If previous public participation efforts have been successful, however, no significant new issues should be raised at this time. [1]	wk. 46	Public liaison, consultant, grantee	General public
5. Town approval and submission to state and EPA	Public notice	wk. 47	Public liaison	General public
	Prepare final Responsiveness Summary[1] Place on file at local libraries, Town Hall	wk. 48	Public liaison	EPA

Note:
[1] Required by proposed Part 35
[2] Required by proposed Part 25
[3] Meets a performance standard of Parts 25 and/or 35

BUDGET

BASIC PUBLIC PARTICIPATION PROGRAM

Salaries

Public Liaison

Consultant Staff

Secretary

Travel

$.15/mile - approx. 1,000 miles

Printing

Postage

Phone

TOTAL

Notes:

1. No actual dollar amounts are listed here as those amounts will vary depending upon a number of variables, such as:
    a. size of community and resulting mailing list, travel costs, etc.
    b. whether printed material is mimeographed, photocopied or printed; and
    c. whether community volunteer assistance is utilized (for example, the survey outlined in the Plan of Study could be distributed by local high school students).
2. The budget need deal only with those expenses directly attributable to public participation. The public participation and information responsibilities normally required of the consultant and the grantee need not be separately budgeted.
3. The Plan of Study Outline submitted prior to grant award contains a fair amount of detail on activities that take place during the first 45 days of the grant. After the first 45 days, a revised workplan will provide additional detail on the remainder of grant activities.

Table 6

MODEL

PLAN OF STUDY

FULL SCALE PUBLIC PARTICIPATION

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
Award of Step 1 Grant				
1. Engineer selection	a) public notice b) informal meeting w/key interests	wk. 1	grantee	Range of community interest that will ultimately be on advisory committee environmental civic business labor
2. Initiate preliminary stages of public participation plan of study (work element of)	a) grantee hire public participation coordinator	wk. 2	grantee	Volunteer community leader w/organizational skills and knowledge of water quality
	b) consulting firm designates public liaison[2]	wk. 2	consultant	
	c) begin to develop mailing list[2]	wks. 1-3	grantee	All those private and public interests with a potential interest in the Facility Plan. Some of the list will be obtained from the 208 agency.
	d) deposit key documents in town library			
	e) public notice regarding availability of documents	wks. 1-3	grantee	Mailing list media
	f) establish citizen advisory committee[1] 1) notice to mailing list and media of opportunity to become member[2] 2) notice to mailing list and media of finally selected members.[3]	wk. 3	public part. coor. grantee	Members of local organizations such as: League of Women Voters Chamber of Commerce Sierra Club Tax Payers Association Local Union Minority Group Mailing list Newspapers
	g) public notice w/factsheet of first CAC meeting to review public participation workplan. Factsheet will describe project. Notice will include list of advisory committee and engineer.[3]	wk. 3		
	h) train advisory committee members and grantee in one-day workshop. Purpose will be to briefly review town's water quality problems, need for action, role of CAC, types of conflicts and tradeoffs likely. Establish goals of CAC. Workshop run by grantee and consulting engineer.[2]	wk. 6	public part. coor. grantee	CAC members, engineer, town officials, state officials
3. Review public participation work element. Develop public participation workplan	a) Public CAC meeting to review public participation workplan[3]	wk. 5	Grantee, public part. coor.	Broad range of community interests, CAC, consulting engineer, grantee representative
	b) Revised public participation workplan sent to EPA[1]	wks. 6-7	public part. coor.	

Note:
[1] Required by proposed Part 35
[2] Required by proposed Part 25
[3] Meets a performance standard of Parts 25 and/or 35

Table 6 cont'd.

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
Development of Facility Plan				
1. Assess current situation		mos. 2-4		
	a) begin monthly newsletter[3]		public participation coordinator	General public
	b) informal consultation/interviews[3]		public participation coordinator, consultant's public liaison	Key officials, selected citizen leaders and special interests
	c) joint 201-208 staff and CAC meeting[3]		public participation coordinator, grantee rep., consultant staff and public liaison	201-208 staff and key advisory committees
2. Assess future situation		mos. 3-6		
	a) field trip[3]		public part. coor.	General public
	b) speakers bureau[3]		CAC, consulting engineer, grantee rep.	General public
	c) series of workshops on special issues[3] 1) Sensitive Environmental Areas 2) Residential and Industrial Growth		public part. coor., consultant, public liaison	Public and civic interest group
	d) public meeting[1]		CAC, public part. coor., consultant liaison, grantee rep.	General public and special interests
	e) agency responsiveness summary[1]		public part. coor.	EPA, state participants in meeting
3. Consideration of alternatives Cost-Effectiveness analysis	a) factsheet on alternatives[2]		public part. coor.	General public
	b) speakers bureau continues[3]		as previously described	
	c) CAC mid-study briefing[3]		consulting engineer staff	CAC, grantee, public groups
	d) public meeting[1]			General public
	e) agency responsiveness summary[1]		public part. coor.	EPA, participants in meeting
4. Engineer's Recommendation on Preferred Alternative		mos. 7-8		
	a) public hearing notice[2]		public part. coor.	General public
	b) prepare and mail factsheet 30 days[2] days in advance		public part. coor.	Mailing list, civic organizations, local government
	c) hearing on recommended alternative and EIS [1]		grantee, public part. coor.	General public
5. Town Approval		mo. 9		
	a) agency responsiveness summary distributed to hearing participants [2]		public part. coor.	EPA, state, hearing participants
	b) final responsiveness study submitted to EPA with Facility Plan [1]			
	c) public notice of final decision [3]			
6. Application for Step 2 Grant	a) CAC meeting to develop public participation plan for Step 2 and 3		public part. coor.	CAC members, grantee rep.

Note: Required by proposed Part 35
Required by proposed Part 25
Meets a performance standard of Parts 25 and/or 35

Table 7

MODEL

PUBLIC PARTICIPATION WORKPLAN
FULL SCALE PUBLIC PARTICIPATION

DECISION POINT Development of Facility Plan	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
1. Assess current Situation		mos. 2-4		
	a) "Clean Water News", Vol. 1[3] monthly newsletter to be mailed throughout the Step 1 process. The first newsletter will: - describe what is known concerning the current situation - describe additional information being sought by consultant - outline the project schedule including public participation activities - identify staff contacts and CAC members - solicit comments and feedback from public with brief tear out questionnaire	wk. 8	public part. coor.	All interested persons from the region CAC, consulting engineer grantee representative Use 208 mailing list
	b) consultations with key publics i. informal interviews w/selected individuals w/knowledge of community situation[3]	wks. 8-12	public part. coor. consultant, public liaison	Public health officer Town engineers Industrial dischargers Conservation Commission members Other knowledgeable citizen leaders
	ii. CAC meeting. This will be an open meeting announced in Vol. I of the newsletter and will center around the key questions that should be asked during the assessment of the current situation.[3]	wk. 10	public part. coor.	Citizens Advisory Committee and interested members of general public
	iii. Joint meeting with some 208-201 staff and 208-201 CAC to discuss implications of 208 plan for 201 study. Appoint permanent staff and CAC liaison[3]	wk. 11	public part. coor. grantee rep. consultant staff and public liaison	Engineers, grantee representative, key CAC members
	c) "Clean Water News", Vol. 2[3] - summarize preliminary findings of assessment - identify key areas of social/economic/environmental conflict to be affected by Facilities Plan - notice of field trip to problem areas	wk. 12	public part. coor.	General public

Note:
[1] Required by proposed part 35
[2] Required by proposed part 25
[3] Meets a performance standard of Parts 25 and/or 35

Table 7 cont'd.

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
2. Assess future situation		mos. 3-6		
	a) field trip focusing on areas of future conflict[3]	wk. 16	public part. coor.	CAC, grantee, consultant general public
	b) Speaker's Bureau: public coordinator's office and CAC speak at numerous scheduled civic meetings regarding the issues involved in the facilities planning process [3]	wks. 12-24	public part. coor., grantee rep., consultant liaison, CAC	General public, civic groups, i.e., PTA, Rotary, garden clubs, environmental groups, round table, etc.
	c) send out notice of public meeting with factsheet [2]	wk. 14	public part. coor.	Mailing list, general public, CAC
	d) "Clean Water News", Vol. 3 [3] - key issues in future assessment study - what existing land-use plans and populations projections mean for Facility Plan - what does the 208 plan say about the future? - preliminary ideitification of treatment alternatives - notice of public meeting	wk. 16	public part. coor.	
	e) series of special interest workshops to discuss key issues and alternatives[3]	wks. 14-16	public part. coor., grantee rep., consultant liaison	Civic groups
	f) public meeting with CAC[1] - establish working Task Forces as subcommittees of CAC to work w/consulting engineer in resolving critical issues and in monitoring the engineer's analysis of treatment alternatives	wk. 19	public part. coor., grantee rep., consultant liaison	General public, special interests
	g) agency responsiveness summary [1]	wk. 20	public part. coor.	EPA, state
	h) Clean Water News, Vol. 4 [3] - summarize results of public meeting - describe agency responsiveness summary	wk. 20	public part. coor.	
3. Consideration of Alternatives Cost-Effectiveness Analysis		mos. 6-9		
	a) Clean Water News, Vol. 5, [3] This newsletter would include a factsheet presentation on the major alternatives being considered. The factsheet will describe: - major environmental social and economic impacts and implications for community development	wk. 24	public part. coor. public part. coor.	General public General public
	b) public meeting notice [2]	wk. 26	public part. coor., grantee rep., consultant liaison, CAC	
	c) speakers bureau continues. focus on alternatives [3]			
	d) CAC and Task Force meet with consulting engineer for mid-study briefing on alter--natives [3]	wk. 28	consulting engineer, public part. coor.	
	e) public meeting to solicit comments an questions on alternatives, and to present preliminary EIS study	wk. 31	public part. coor., grantee, consultant	General public, CAC, grantee
	f) agency responsiveness summary [1]			EPA

Table 7 cont'd.

DECISION POINT	TECHNIQUE	SCHEDULE	STAFF SUPPORT	TARGET AUDIENCE
4. Engineer submits recommendation of preferred alternative to town officials (mo. 11)	a) notice of public hearing received 30 days in advance[2]	wk. 41	public part. coor.	Newspapers, mailing list general public
	b) factsheet summarizing final recommendations and notifying of upcoming hearing [2]	wk. 41	public part. coor.	General public, mailing list
	c) public hearing (possibly town meeting) on recommendations and draft EIS [1]	wk. 46	grantee	
5. Town approval of Facility Plan and submission to State and EPA		mo. 12		
	a) notify public[3]	wk. 46		General public EPA State agency
	- prepare agency final Responsiveness Summary[1]	wk. 47-48	public part. coor.	
	- place on file at easily accessible locations around town (public library, town hall), mail copies of agency responsiveness summary to hearing participants		public part. coor.	General public
6. Application for Step 2 Grant	a) consultation with CAC to determine future role and develop public participation program for Steps 2 and 3 [3]			CAC
	b) public notice and factsheet			

Table 8

BUDGET

FULL SCALE PUBLIC PARTICIPATION PROGRAM

Salaries

- Public Participation Coordinator
- Assistanc Public Participation Coordinator
- Secretary
- Consultant Liaison

Advisory Committee Budget

- Travel
- Clerical Support
- Technical assistance

Staff Travel

Printing

Postage

Phone

TOTAL

Notes:

1. No actual dollar amounts are listed here as those amounts will vary depending upon a number of variable, such as:
   a. size of community and resulting mailing list, travel costs, etc.
   b. whether printed material is mimeographed, photocopied or printed; and
   c. whether community volunteer assistance is utilized (for example, the survey outlined in the Plan of Study could be distributed by local high school students).
2. The budget need deal only with those expenses directly arrtibutable to public participation. The public participation and information responsibilities normally required fo the consultant and the grantee need not be separately budgeted.

Table 8 cont'd.

3. The Plan of Study Outline submitted prior to grant award contains a fair amount of detail on activities that take place during the first 45 days of the grant. After the first 45 days, a revised workplan will provide additional detail on the remainder of the grant activities.

4. The cost of the public participation coordinator will vary depending upon the institutional attachments and background of that coordinator. For example, the coordinator could be:

   a. on the consulting engineer's staff;

   b. on the grantee's staff;

   c. a representative of a public interest group; or

   d. a private citizen with background and experience in public participation programs.

APPENDIX C

GLOSSARY

Activated Sludge - Sludge that has been aerated and subjected to bacterial action, used to remove organic matter in raw sewage during secondary waste treatment.

Activated Sludge Process - The process of using biologically active sewage sludge to hasten breakdown of organic matter in raw sewage during secondary waste treatment.

Advanced Waste Treatment/Tertiary Treatment - Treatment beyond secondary or biological stage required to meet strict quality standards. Depending on the process selected, advanced or tertiary treatment can provide additional removal of standard organic pollutants, suspended solids, inorganic ions or nutrients such as phosphrous and nitrogen. Advanced treatment is the "polishing stage" of wastewater treatment and generally produces a high quality effluent.

Ad Valorem tax - A value added tax such as a property tax.

Advanced waste treatment/tertiary treatment - Provides additional treatment above secondary treatment in order to provide additional removal of standard organic pollutants or to remove one or more specific organic compounds or inorganic ions from the stream. A number of processes may be involved depending on the pollutants to be removed.

Ambient Water Quality - Quality of the receiving waters into which effluent is discharged.

Average Flow - The average quantity of effluent which enters the treatment system over a given time period. Usually expressed as average daily flow.

Best Available Technology (BAT) - The degree of pollutant removal possible by application of the highest level of technology economically achievable. BAT standards are required for all toxic and nonconventional pollutants by July 1, 1984, unless a variance is obtained.

Best Practicable Technology (BPT) - The degree of pollutant removal achievable by application of the best average technology economically and technically practicable for a given industry. BPT standards are required of all industries by July 1, 1977, except where variances have been granted by EPA.

Pages 116, 117, 118 are blank,

Best Practicable Waste Treatment Technology (BPWTT) - The degree of pollutant removal required of all publicly owned treatment works in 1983. Defined by EPA as the equivalent of secondary treatment or whatever other treatment is required to meet water quality standards, BPWTT should involve reclaiming and recycling of water and confined disposal of pollutants so they will not migrate to cause water or other environmental pollution as well as consideration of advanced waste treatment techniques.

Biochemical Oxygen Demand (BOD) - The quantity of oxygen used in the aerobic decomposition of organic matter, usually expressed in parts per million. The degree of BOD removal is used as a measure in determining the efficiency of a sewage treatment plant as well as in measuring stream water quality.

Cesspool - Large porous cistern into which residential wastewater flows. Solids remain in the cistern while the effluent, a liquid portion, seeps out through the walls into surrounding ground. Because little biological action takes place in the cesspool, the solids must be removed by frequent pumping.

Chemical Oxygen emand (COD) - A measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water. The COD test, like the BOD test, is used to determine the degree of pollution in an effluent.

Chlorination - The application of chlorine to drinking water, sewage, or industrial waste for disinfection or oxidation of undesirable compounds.

Coliform Bacteria - A class of bacteria that live in the human intestines. They are always present in raw sewage. Their presence provides positive evidence of pollution and the possible presence of the pathogenic bacteria.

Combined Sewers - A sewerage system that carries both sanitary sewage and storm water runoff. During dry weather combined sewers carry all wastewater to the treatment plant. During a storm only part of the flow is intercepted because of plant overloading; the remainder goes untreated to the receiving stream.

Cost-Effectiveness Guidelines - Developed by EPA to aid grantees in the selection of the waste treatment management system component which will result in the minimum total resources cost over a fixed period of time to meet federal, state and local requirements.

Design Flow - The average quantity of wastewater which a treatment facility is designed to handle, usually expressed in millions of gallons per day (MGD).

Design Period - Time span over which wastewater treatment facilities are expected to be operating; period over which facility costs are amortized.

Effluent - (1) A liquid which flows out of a containing space. (2) Sewage, water or other liquid, partially or completely treated, or in its natural state, flowing out of a reservoir, basin or treatment plant; or part thereof.

Effluent Limitations - The maximum amount of a pollutant that a point source may discharge into a water body. They may allow some or no discharge at all, depending on the specific pollutant to be controlled and the water quality standards established for the receiving waters.

Effluent Limited - Stream segments which meet and will continue to meet water quality standards once the national uniform point source controls are applied.

Environmental Impact Assessment (EIA) - A preliminary evaluation of the potential environmental impacts (positive and negative) of a proposed federally funded sewage treatment project. It should be submitted ss part of the Facilities Plan.

Environmental Impact Statement (EIS) - A detailed analysis of the potential environmental impacts of a proposed project required when the EPA Regional Administrator determines that a project is highly controversial or may have significant adverse environmental effects.

Facility Plan - Preliminary plan developed during the first step (Step 1) of the Three Step Construction Program. The plan, based on an evaluation of various treatment alternatives, must be both cost-effective and politically acceptable.

Fecal Coliform Bacteria - A group of organisms common to the intestinal tracts of man and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

Force Mains - Pipes used to remove wastewater under pressure against the force of gravity, allowing for the transfer of sewage between natural drainage basins or for conveyance of wastewater at minimal slopes over relatively long distances.

Grant-Eligible - Refers to costs of planning and constructing a treatment facility which may receive federal funds under the EPA Construction Grants program.

House connection (or house laterals) - This is the point of contact between the user and the treatment system.

Industrial Cost Recovery - A provision in the 1972 FWPCA which requires industries to pay back to the federal government the extra capital costs that their discharges impose on municipal treatment plants. (The 1977 Clean Water Act established an 18-month moratorium on Industrial Cost Recovery.)

Infiltration/Inflow - Total quantity of water entering a sewer system. Infiltration means entry through such sources as defective pipes, pipe joints, connections, or manhole walls. Inflow signifies discharge into the sewer system through service connections from such sources as area or foundation drainage, springs and swamps, storm waters, street wash waters, or sewers.

Interceptor - Any pipe regardless of size that carries wastewater directly to the treatment plant. Generally, they are the largest pipes in the collection system.

Lateral - The pipe to which individual houses and business establishments attach. If one considers the analogy of tree, the laterals represent the twigs.

Main/Submain - The word main is frequently used loosely to indicate a large pipe which is not a lateral and not an interceptor. It frequently forms one of the larger branches of a complex collection system.

National Pollution Discharge Elimination System (NPDES) The effluent discharge permit system establishes under the 1972 FWPCA which places conditions on the type and concentration of pollutants permitted in the effluent; and schedules for achieving compliance.

Non-Point Source Pollutants - Pollutions which do not enter the water from any discernable, confined and discrete conveyance but rather wash off, run off or seep from broad areas of land.

Packaged Treatment Plant - A small treatment plant which is partially or completely preassembled by a manufacturer and shipped to a designated location. They are available in a range of sizes from units designed to serve a single dwelling to modular units capable of handling one million gallons per day (MGD)

Peak flow - The maximum volume of effluent expected to enter a treatment system over a given time period. Treatment systems are designed based on an estimate of the rate of peak flow to average flow for different segments of the system.

Plan of Study - An initial brief description of the scope, schedule and costs of a proposed facility plan. It must be prepared by the grantee and approved by the State and EPA before a Step I grant can be approved.

Point source pollutants - Those that enter the water from any discernable, confined and discrete conveyance such as a sewer pipe, culvert, tunnel or other channel or conduct.

Pretreatment - In wastewater treatment, any process used to reduce pollution load before the wastewater is introduced into a main sewer system or delivered to a treatment plant for substantial reduction of the pollution load.

Pressure main - Some systems rely entirely on forced pumping (as opposed to gravity flow) of sewage, to enable use of smaller pipes and simplify design and construction in difficult terrain.

Primary impacts - Those which can be attributed directly to a proposed action.

Primary Treatment - The first stage in wastewater treatment in which substantially all floating or settleable solids are mechanically removed by screening and sedimentation. The process generally removes 30-35 percent of total organic pollutants.

Priority list - A list developed by the state Water Quality Agency of proposed waste water treatment projects in the state. Projects are ranked according to their priority relative to the state's overall water quality management strategy and Federal Construction Grant funding is distributed accordingly.

Reserve capacity - Treatment system capacity which exceeds that required to meet projected community needs for a given time period. The law requires that treatment facilities be designed to include "sufficient" reserve capacity to service future growth. However, EPA will not fund excessive reserve capacity. The actual amount of reserve capacity funded by the Federal grant must be approved by the Regional Administrator.

Sanitary Sewers - Sewers that carry only domestic or commercial sewage. Storm water runoff is carried in a in a separate system. See sewer.

Secondary impacts - Those resulting from indirect or induced changes in community land use patterns, population and economic growth, and environmental quality resulting from induced growth.

Secondary Treatment - Wastewater treatment beyond the primary stage, utilizing bacteria to consume the organic pollutants. A number of processes may be used to achieve what EPA defines as acceptable secondary treatment standards--85-90 percent removal of total organic pollutants and suspended solids.

Septic Tank - The most popular on-site treatment technique relies on a collection tank which receives waste from the home and provides a period of settling, during which a significant portion of suspended solids settle out and are gradually decomposed by bacterial action at the bottom of the tank. The remaining sewage is discharged into a drain field composed of lengths of porous or perforated pipe placed at shallow depths. A well designed and maintained system will provide ecologically sound treatment.

Service Area - The area which will be serviced by a wastewater treatment system.

Sewage - Sewage refers to the wastewater flow from residential, commercial, and industrial establishments which flows through the pipes to a treatment plant.

Sewerage - Sewerage refers to the system of sewers, physical facilities employed to transport, treat, and discharge sewage.

Sewer - Sewer refers to the pipe, conduit, or other physical facility used to carry off wastewater.

Sewer or Sanitary District - A sewer district is either a semiautonomous governmental unit whose purpose is the provision of sewerage or a special assessment district within which sewerage facilities are provided to residents.

Sludge - The accumulated settled solids deposited from sewage or industrial wastes, raw or treated, in tanks or basins, and containing more or less water forming a semi-liquid mass.

Storm Sewer - A conduit that collects and transports rain and snow runoff back to the ground water. In a separate sewerage system, storm sewers are entirely separate from those carrying domestic and commercial wastewater.

Suspended Solids (SS) - Small particles of solid pollutants in sewage that contribute to turbidity and that resist separation by conventional means. The examination of suspended solids and the BOD test constitute the two main determinations for water quality performed as wastewater treatment.

Tertiary Treatment - (see Advanced Treatment)

Trickling Filter - A device for the biological or secondary treatment of wastewater consisting of a bed or rocks or stones that support bacterial growth. Sewage is trickled over the bed enabling the bacteria to breakdown organic wastes.

User charges - Fees levied upon users of a wastewater treatment system based upon the volume and characteristics of the waste.

Waste load allocations - Distribution of the total "pollutant load" permitted on a particular water body among the various discharges to that water body. (required by section 303 of the Clean Water Act. The "pollutant load" for a particular water body is determined by the water quality standards established for that water body. Waste load allocations are applied in situations where stream segments are classified as water quality limited. They will generally result in imposition of stricter effluent limitations on discharges to a particular stream segment than secondary treatment.

Water quality criteria - The levels of pollutants that affect the suitability of water for a given use. Generally, water use classification includes: public water supply; recreation; propagation of fish and other aquatic life; agricultural use and industrial use.

Water quality limited - Stream segments which will not meet water quality standards with the application of uniform point source controls. Additional pollution control measures for industrial and municipal discharges will be required if water quality standards are to be achieved.

Water quality standard - A plan for water quality management containing four major elements: the use (recreation, drinking water, fish and wildlife propagation, industrial or agricultural) to be made of the water; criteria to protect those uses; implementation plans (for needed industrial-municipal waste treatment improvements) and enforcement plans, and an anti-degradation statement to protect existing high quality waters.

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